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## College of Arts and Letters Undergraduate Catalog 2024-2025

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### Mission

The College of Arts and Letters leads liberal arts education and research at the University of Toledo. Through our diverse people and programs in the Arts, Humanities, and Social Sciences we prepare students to excel as creative, ethical, collaborative, and global citizens.

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## Admission Policies

### NEW FIRST-YEAR STUDENTS

#### Required for Unconditional Direct Admission:

- 2.5 GPA or higher for test optional applicants
- 15 ACT/830-870 SAT and a minimum 2.5 GPA
- 16 ACT/880-910 SAT and above with a minimum 2.0 GPA
- Minimum GPA requirements for test-optional applicants are determined by academic college, and the information is represented below.

#### Subject to Review:

- Test-optional applicants between 2.0 and 2.49 GPA
- Under a 15 ACT or 830-870 SAT and a 2.75 GPA or above
- 15 ACT or 830-870 SAT and a 2.0-2.49 GPA
- 16 ACT or 889-910 SAT and above, but less than a 2.0 GPA

Students should also have successfully completed a minimum of three years of high school mathematics (algebra I, algebra II and geometry) and high school chemistry.

#### Music

Audition required (call 419.530.2448 for an appointment)

#### Pre-Medicine, Pre-Dentistry, Pre-Veterinary Medicine

Pre-medicine, pre-dental and pre-veterinary medicine are pre-professional concentrations, not undergraduate majors. Students in any major may declare any concentration of their choosing in consultation with the Pre-Health Advising Center.

### CHANGE OF COLLEGE

Students in good standing (i.e., with a cumulative UT GPA of 2.0 or higher) who wish to change from another college of The University of Toledo to the College of Arts and Letters should make an appointment with a college Advisor in the College Student Services Office to discuss their new major and have their academic records reviewed. All college requirements, including core, major and related field requirements, must be fulfilled as specified in the catalog for the year in which the student enters the College of Arts and Letters. Credit restrictions and level requirements for College of Arts and Letters students will apply.

### ADMISSION WITH TRANSFER CREDIT FROM ANOTHER INSTITUTION

Course work from other institutions is accepted at the level of the UT course equivalent. All Study Abroad credit is accepted as transfer credit. Students with transfer credit are generally expected to fulfill all University and college course requirements for a degree in the College of Arts and Letters as specified in the catalog for the year in which they enter the

College of Arts and Letters. In some cases, not all the credits that transfer into The University of Toledo will apply toward a degree in the College of Arts and Letters, e.g., developmental courses and elective credits in the major. Transfer students from other institutions must take at least 30 semester hours at The University of Toledo, including 12 semester hours of work in their major field (22 semester hours in Psychology) and 9 semester hours in their minor field, regardless of the number of hours transferred.

Students transferring to the University of Toledo in Spring 2007 or later, including transfer readmits, must meet minimum GPA requirements in their Arts and Letters majors and minors with both

1. the grades of all courses attempted at UT and
2. in a second calculation, the grades of all courses applied to the major from all institutions (including UT).

The grades of all courses (from all institutions) that are used by students to satisfy the core curriculum must be used in the calculation of the UT core curriculum GPA.

UT students who attend other institutions as guests or transient students in Fall 2008 or later must also meet minimum GPA requirements in their Arts and Letters majors and minors with

1. the grades of all courses applied to the major at UT and
2. in a second calculation, the grades of all courses applied to the major at all institutions (including UT).

The grades of all courses (from all institutions) that are used by students to satisfy the core curriculum must be used in the calculation of the UT core curriculum GPA. For the purposes of meeting minimum cumulative GPAs in a student's major(s) and/or minor(s) and the core curriculum, the grades of all courses attempted at all institutions will be included in the GPA calculation(s).

Transfer students should note that The University of Toledo will include all course work taken at all institutions of higher education in the calculation to determine if a student will graduate with honors. All college course work ever taken is computed in determining eligibility for graduation with Latin honors (e.g. *cum laude*), although no student will be awarded a level of honors above that indicated by The University of Toledo cumulative grade point average (GPA). Note: The University of Toledo requires a minimum of 30 semester hours of standard letter graded courses from UT in order to qualify for graduation with Latin honors.

An applicant who has undertaken courses at a regionally accredited college or university and who submits an official transcript through the Office of Undergraduate Admission for Adult, Transfer and International Students will be admitted to the College of Arts and Letters, provided the student has maintained a minimum GPA of 2.0 on a 4.0 scale.

Exceptions to this minimum admission requirement for academic majors are rarely made and require the applicant to explain in a written petition the special circumstances that warrant waiver of the requirement. The undergraduate associate dean will consult with the appropriate academic offices and render a decision. Approval of the petition is not automatic,

and those students who are admitted by petition will be placed on special probationary status and must meet certain conditions to remain enrolled.

If the college from which the applicant transfers lacks proper accreditation, the student may be denied transfer credit on the basis of the transcript, but may be allowed to obtain credit by passing advanced standing examinations with at least a C grade. Official transcripts of records from all schools previously attended must be on file with the Office of Undergraduate Admission for Adult, Transfer and International Students before the student will be permitted to register.

## A SECOND DEGREE OR MAJOR AT THE UNIVERSITY OF TOLEDO

A student earning a first degree at The University of Toledo in a college other than Arts and Letters may earn a second bachelor's degree in the College of Arts and Letters by satisfying all requirements for both degrees. An undergraduate with a degree from another institution is considered a transfer student. Note that students who readmit subsequent to earning their first degree may earn a second bachelor's degree as long it is not concurrent with their residency for the first degree and does not duplicate the initial credential. In these cases, such a student is then considered a candidate for a second degree. See requirements for admission with transfer credit from another institution. See also sections on majors and minors for restrictions.

A student earning a degree at The University of Toledo in the College of Arts and Letters may earn a second degree in the college by completing the requirements of both degrees. General education courses that meet the requirements of both degrees will count for both. The two degrees must be of a different type (BFA and BM, BFA and BA, or BA and BM), and both must be offered by the College of Arts and Letters.

A student earning a Bachelor of Arts in the College of Arts and Letters may concurrently earn a second major in the same degree by completing the requirements of both majors. The second major may serve as a replacement for the "Related Fields" requirement in the Bachelor of Arts degree with department approval. It is important to understand that completing this pathway will result in the achievement of a single degree but with dual majors, from the College of Arts and Letters.

## REQUIREMENTS FOR STUDENTS WITH AN ASSOCIATE'S DEGREE

Students holding an Associate of Arts or Associate of Science degree from an accredited college are encouraged to enroll in the College of Arts and Letters and, in many instances, may expect to earn an appropriate baccalaureate upon completion of two years of full-time study. Students with an Associate's degree in a technical program will likely require more time to complete a bachelor's degree. The following regulations apply:

- Students must complete the equivalent of the specified University and college core curriculum and distributive requirements for a bachelor's degree. In all baccalaureate programs, a minimum of 60 - 64 hours must be taken at the 2000 to 4000 levels; of these, a minimum of 30 - 32 hours must be taken at the 3000 to 4000 levels in baccalaureate degree-granting colleges. Course work from other institutions is accepted at the level of the UT course equivalent.
- Students may enroll in any departmental or interdisciplinary program for which they meet the admission criteria. All of the usual major and related fields requirements must be fulfilled as specified in the

catalog for the year in which the student entered the College of Arts and Letters.

## READMISSION OF FORMER STUDENTS

Students who have withdrawn from the College of Arts and Letters (or a previously-existing college containing a major currently offered in the College of Arts and Letters) and The University of Toledo and have not attended any other institution in the interim may be readmitted, provided they were eligible to continue enrollment in the college at the time they discontinued attendance. Such students should readmit through the Admissions Office. Students who readmit after more than 12 consecutive months' absence must comply with existing college requirements at the time of readmission.

## Academic Policies

Refer to **UToledo Policy website** (<http://www.utoledo.edu/policies/>) for academic policies that apply to all students.

## ACADEMIC ADVISING

Academic advising is a process intended to help students derive as many benefits as possible from their education. This occurs when Advisors help students develop and reach academic and career goals. While the ultimate responsibility for making personal and educational decisions rests with the student, Advisors assist by helping to identify and assess alternatives and the consequences of decisions. Advising can be much more than selecting courses. The more frequently students arrange to meet with their Advisors, the better their needs can be served. New students, transfer students, students changing colleges, and continuing general studies students are advised in the Student Services Office, University Hall Room 3000, by college staff Advisors. They:

- provide essential information;
- help students select courses to meet university general education and college requirements;
- suggest courses for the exploration of majors and minors; and
- help students evaluate academic progress and adjustment to university life.

Students with declared majors and/or minors are advised by departmental major or program Advisors, faculty who provide general information as well as more specialized information about majors and minor programs, departmental course offerings, and career and graduate opportunities. They help students select courses for core, major, related fields, and other requirements. Students seeking more than one major or degree, a minor, or admission to professional school should meet periodically with one or more additional Advisors. Departmental major advisors will be assigned within the department. Students can see their assigned academic advisor on their student profile in the self service portal.

## STUDENT RESPONSIBILITIES

Students are responsible for correctly selecting courses for their programs of study each semester and for fulfilling all degree requirements. Although Advisors will assist wherever possible, the final responsibility rests with the student. Students are expected to make sure that they are fulfilling all degree requirements, as published in the issue of

the catalog under which they entered. Students who have been out of the College of Arts and Letters for 12 consecutive months are responsible for the requirements in the University catalog under which they reenter.

## TRANSCRIPTS AND DEGREE AUDIT REPORTS

A transcript is a complete chronological list of a student's academic course work (including all courses attempted and grades earned). It does not show how specific courses apply or do not apply to University and college requirements as stipulated in this catalog. For example, developmental, non-repeatable and certain other courses are not counted toward minimum credits for degrees, but appear on transcripts.

The Degree Audit Report (DAR) details all requirements applicable to a student's academic program (degree, major, minor) and applies the student's courses on the transcript (including transfer credit) to those requirements. The DAR should be used to identify requirements remaining when all registered courses are completed. Students may view their transcript and DAR through the myUT portal.

## DECLARING OR CHANGING A MAJOR OR MINOR

To declare a College of Arts and Letters major or minor or change a College of Arts and Letters major or minor previously declared, students must send an email to [ALSMadvising@utoledo.edu](mailto:ALSMadvising@utoledo.edu) from their Rocket email account.

## SEQUENCE OF COURSES

There is no single prescribed sequence of courses, except that all first-year students should take AR 1000 Orientation, College Composition I and II, and math unless their program of study indicates otherwise. Students should consult the later sections of the catalog devoted to programs of study and course offerings, and they should review their programs with their academic advisors to ensure they complete courses in the proper sequences. In addition, students should use their Degree Audit Reports to track their progress.

Outside the major, during the first two years, they should be sure to take those courses in the core requirements that are prerequisite to courses they wish to take as juniors and seniors.

## STUDY ABROAD OR STUDY AWAY

Students who plan to study abroad or away must be sure that their proposed course of study is properly accredited. Its academic acceptability should be verified before departure. Students also should ascertain in advance from their Advisors whether the course work will count toward their core curriculum requirements, majors, or related areas or only be regarded as elective. Credit for foreign language study is subject to the approval and recommendation of the department of foreign languages.

Information about study abroad programs is available from the Center for International Studies and Programs, Snyder Memorial, suite 1000: <http://www.utoledo.edu/cisp/>. Your Advisor will also have general information about study abroad.



## STATEMENT ON ACADEMIC DISHONESTY

A student found to be academically dishonest by a faculty member may appeal, in order, to the department Chair, the college appeals committee, the Dean and the University student grievance council. The procedures for making an appeal to the student grievance council may be found in *The University of Toledo Student Handbook* on the Student Affairs website at <http://www.utoledo.edu/studentaffairs/index.html> (<http://www.utoledo.edu/studentaffairs/>).

Criteria governing this policy are detailed in the undergraduate policy 3364 71 04: Academic Dishonesty: <http://www.utoledo.edu/policies/academic/undergraduate/>

## COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

The College of Arts and Letters will accept a maximum of 21 semester hours of CLEP through successful completion of the four general examinations. Additional credit may be earned through satisfactory scores on individual subject examinations. Specific information about general examination scores and credit can be found in the general section of the catalog: <https://nextcatalog.utoledo.edu/general-section/earning-alternative-college-credit/> (<https://catalog.utoledo.edu/general-section/earning-alternative-college-credit/>).

## ADVANCED PLACEMENT PROGRAM

Refer to the University of Toledo Office of the Registrar webpage at [http://www.utoledo.edu/offices/registrar/student\\_records/advan\\_credits.html](http://www.utoledo.edu/offices/registrar/student_records/advan_credits.html) for specific information on minimum scores and credits awarded for Advanced Placement examinations administered by the College Board Advanced Placement Program.

## PASS/NO CREDIT OPTION

Refer to the individual programs of study in the undergraduate section of this catalog for the limitations on pass/no credit grading in effect for different majors. Undecided students, as a general rule, should not elect pass/no credit grading in major-level courses.

## GRADUATION EVALUATION REQUIREMENTS

Detailed instructions on planning for graduation and ensuring the completion of requirements are available on the Student Services website: [https://www.utoledo.edu/offices/student-services/faq/grad\\_steps.html](https://www.utoledo.edu/offices/student-services/faq/grad_steps.html)

## FIELD EXPERIENCE/INTERNSHIP

Policies and procedures for incorporating field experiences or internships in academic programs vary from major to major. Some majors require a field experience or internship; for other majors, they are optional. Students should seek information from their major departments and obtain advance approval for all field experiences or internships.

## Student Services

The Office of Student Services supports Arts & Letters students throughout their academic careers, helping them derive as many benefits

as possible from their education. The office's academic advisors are vital links to successful degree completion, providing students with services and resources to help them accomplish their goals.

Advisors assist students in understanding degree requirements, assessing progress toward degree completion, selecting courses and prerequisites, monitoring academic performance, discussing plans for the future, as well as one-on-one academic mentoring to students with academic issues or on academic probation.

For more information, go to <http://www.utoledo.edu/offices/student-services/>. (<http://www.utoledo.edu/offices/student-services/>)

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## Degree Requirements

### Grade Point Averages

A cumulative grade point average (GPA) reflects all grades earned, including grades of F and grades in repeated courses. Students must earn a minimum overall cumulative GPA of C (that is, a 2.0 GPA on a 4.0 scale) for all UT course work. In addition, students must earn a minimum cumulative GPA of C in the major, minor (optional) and UT core curriculum requirements with the grades of all courses attempted at all institutions included in the GPA calculation. Some programs require a higher GPA in the major. Criteria governing this policy are detailed under 3364 71 07: GPA recalculation (<http://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-07%20Repeating%20a%20course%20and%20recalculation%20of%20GPA.pdf>).

### Residency Requirement

The undergraduate residency requirement establishes a definition for residency for the awarding of an undergraduate degree from the university. Residency is defined as the minimum number of credit hours a student needs to complete while enrolled at the university. The undergraduate residency requirement for the University of Toledo is 30 credit hours. A student must complete at least 30 credit hours while enrolled at the university in order to qualify for a degree. The 30 credit hours may be accumulated over multiple semesters in which the student is enrolled at the university. Policy Name: 3364-71-10 Residency requirement for a degree (<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.utoledo.edu%2Fpolicies%2Facademic%2Fundergraduate%2Fpdfs%2F3364-71-10%2520%2520Residency%2520requirement%2520for%2520a%2520degree.pdf&data=05%7C01%7CCathy.Zimmer%40utoledo.edu%7C6ed292558f9f4974205a08dab8f91f08%7C1d6b1707baa94a3da8f8deabfb3d467%7C0%7C0%7C638025677344144350%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Iklk1haWwILC%7C3000%7C%7C%7C&sdata=uFkHts67myc61mCTDpNw6uJgOlGpVsl5SuD115Xxr8E%3D&reserved=0>)



## Credit Hours and Levels

1. Students must complete 120-124 credit hours of course work that must include the University and college core curriculum requirements, and an area of concentration (major) and course work related to the major. The exact number of hours is determined by the program.
2. In all baccalaureate programs, a minimum of 60-64 hours must be taken at the 2000 to 4000 levels; of these a minimum of 30-32 hours must be taken at the 3000 to 4000 levels. (Courses transferred from community, junior or technical colleges offering Associate degrees will count at the levels of their UT equivalents.)
3. Students are cautioned to make use of their degree audit and review remaining requirements with their Advisor before every registration in order to make progress toward completion of their requirements in an orderly, timely manner.
4. Insofar as a student can complete the basic courses and the courses required for a chosen major in fewer than the hours required for a degree, the student must choose elective courses to complete the total hours, subject to the restrictions outlined below.

## Credit Restrictions

Total earned hours shown on a student's transcript may not all be applicable to the 120-124 credits required for a degree, as follows:

1. Students with entrance deficiencies in mathematics and other students who are required or choose to take developmental course work will not be able to count those hours toward the degree.
2. No more than four hours of credit in performing ensembles (MUS 3010 to MUS 3190) will apply toward the degree.
3. No courses in typing, shorthand or keyboarding will apply toward the degree.
4. No more than two hours in Student Leadership Development I and II will apply toward the degree.
5. Duplicate credit - except for courses identified as repeatable courses, students will not receive credit for repeated courses (taking the same course twice), whether taken at The University of Toledo or elsewhere.
6. The college reserves the right to deny credit for other specific courses (including most SKLS and some UC courses) and for blanket technical credit not applicable to a student's specific program.
7. A maximum of 2 credits of sport and physical courses are applicable toward a degree.

## University General Education/Core Requirements

Students earning baccalaureates in all colleges and programs are required to complete between 36 and 42 credit hours of courses that comprise the university core curriculum. Those courses are distributed in the areas of English composition, humanities/fine arts, social sciences, natural sciences and mathematics, and multicultural studies. Some colleges and programs require courses in these areas above those required to fulfill University core curriculum requirements. Students should consult their degree audit or their advisor for specific details.

## Departmental Major

Every student must complete either a departmental major or an interdisciplinary major. Courses given in other colleges of the University may be credited to the major only with the approval of the Dean of the College of Arts and Letters upon recommendation of the Department Chair. Waiver of a required course or the substitution of a course from another department does not necessarily reduce the minimum credits required in the major.

**See the complete list of departmental majors under "Degrees Offered" in the College of Arts and Letters section of this catalog.**

The minimum number of semester hours a student must complete for a departmental major is prescribed by the department. A student may have two majors from two different departments within the College of Arts and Letters, provided the requirements of both programs are satisfied. Work in the second major may be accepted as fulfilling the related course requirement, but requires the approval of the Advisors in both departments. A student cannot use courses from the first major to satisfy the second and vice-versa. See section on "Earning a Second Degree" for the statement on requirements when two or more desired major programs are offered as different degrees.

## Interdisciplinary Majors

A student may complete one of the interdisciplinary majors if accepted into that particular program. A student completing a departmental major and a second major in an interdisciplinary or interdepartmental major cannot use courses from the first major to satisfy the second or vice-versa. See the complete list of interdisciplinary majors under "Degrees Offered" in the College of Arts and Letters section of this catalog.

## Minors

Many College of Arts and Letters departments and interdisciplinary programs offer minors. In addition, non-program minors are offered in the college. Specific minor requirements are listed under Programs of Study. Students wishing to pursue minors should consult with their primary program Advisors and then with an Advisor in Student Services. Not all minors can be added to all degree programs. Courses selected for the minor must be chosen from courses acceptable for credit toward a major in the college. In meeting requirements for some majors, work in the minor may be accepted as fulfilling the 18 hours of related courses, but only with the approval of the student's major Advisor. At least 12 hours of the minor must be distinct from any credit hours used to fulfill any major the student is pursuing.

No more than six hours of courses taken for minor credit may be applied to the total College of Arts and Letters core curriculum requirements.

A minimum GPA of 2.0 is required in the minor. Credit hours for a minor contained in the College of Arts and Letters vary from 18 to 22 hours, depending on the minor. At least nine of those hours must be completed at The University of Toledo. All minors must be declared and completed prior to graduation.

## Certificates

The College of Arts and Letters offers several certificates containing credit-bearing courses which appear on an official transcript and give added value to career goals. See the programs in the Departments of Art,

Economics, Communication, and World Languages and Cultures for more information.

## Orientation

All new first-year students are required to take AR 1000 Orientation. The course is optional for transfer students.

## Related Fields Courses

Every student who chooses a departmental major or interdisciplinary major also must complete a minimum of 18 hours in courses related to the major. These 18 hours must be in addition to courses taken to fulfill the basic requirements listed above. Each department defines the areas from which courses may be chosen by its majors, and these listings are given in other sections of this catalog under Programs of Study or in the student's online degree audit. Related fields must be chosen from courses acceptable for credit in a College of Arts and Letters major. Generally, these are upper-level courses.

Courses offered by other colleges of the University may be credited to the major or to related courses only with the approval of the department Chair.

## Writing Across the Curriculum

Students must pass both Composition I and II with a C or better. The College of Arts and Letters recommends that these requirements be met before completing 45 hours of course work.

After completing Composition I and II with a C or better, students must pass two writing intensive courses. The College of Arts and Letters recommends that the first of these writing courses be completed within the first 65 hours of course work, and the second within the first 90 hours. One of these courses must be taken within the student's major. Students with dual majors must take a writing intensive course in each major. Students with interdisciplinary majors will meet this requirement by selecting courses in consultation with their Advisors, who will monitor students' progress to help them complete these requirements in a timely fashion.

Transfer students from institutions that have required writing intensive courses should forward the syllabus to the Registrar's office for review (transfer@utoledo.edu) to show that they have completed writing intensive courses comparable to those required in the College of Arts and Letters. Transfer students who have not taken writing intensive courses must meet the College of Arts and Letters Writing Across the Curriculum requirements.

## Pre-Medical, Pre-Dental and Pre-Veterinary Program

Students interested in professional medical, dental or veterinary careers may choose to apply for the pre-medical, pre-dental or pre-veterinary programs. **Students choosing this option must also complete the requirements for a major in a specific discipline or in an interdisciplinary baccalaureate program.**

Students who have declared the pre-medical, pre-dental or pre-veterinary concentration will have access to additional advising support through the

Pre-Health Advising Center, <https://www.utoledo.edu/success/pre-health-advising/>. (<https://www.utoledo.edu/success/pre-health-advising/>)

## Arts and Letters Requirements

Students should consult with their Advisors in selecting courses that will meet college requirements. With careful planning, students will be able to satisfy both the UToledo Core Curriculum and the College of Arts and Letters requirements by taking the minimum required hours. A student may take no more than two courses (or two courses and one lab for natural sciences) under each departmental code in satisfying the Core requirements.

Code	Title	Hours
<b>1. English Composition (University of Toledo Core Curriculum and College of Arts and Letters requirement) <sup>1</sup></b>		
<i>Select one of the following tracks:</i>		
A. Native speakers track (for students for whom English is a first language)		
ENGL 1110	College Composition I or ENGL 101 College Composition 1 Co-Requisite	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	
B. Non-native speakers track (for students for whom English is a second language) <sup>2</sup>		
ENGL 1020	Writing And Grammar For Students Of English As A Second Language <sup>2</sup>	
ENGL 1110	College Composition I <sup>3</sup>	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	
<b>2. Mathematics (UT Core Curriculum and College of Arts and Letters requirement) <sup>4</sup></b>		
MATH 1180	Reasoning With Mathematics <sup>5</sup>	
<b>3. Humanities and Fine Arts (University of Toledo Core Curriculum and College of Arts and Letters requirement)</b>		
UToledo Core requirement is two courses for six hours. To complete the Humanities and Fine Arts core, College of Arts and Letters students should select one history course and one literature course from the following:		
A. English Literature		
ENGL 2710	Reading Fiction	
ENGL 2720	Reading Drama	
ENGL 2730	Reading Poetry	
ENGL 2770	Ethnic American Literature	
ENGL 2800	Writing About Literature (WAC)	
B. History		
HIST 1010	Europe To 1600	
HIST 1020	Europe From 1600	
HIST 1050	World History To 1500	
HIST 1060	World History From 1500	
HIST 1070	The Contemporary World	
HIST 1090	East Asia From 1800	
HIST 1100	Latin American Civilizations	

HIST 1110	African Civilization
HIST 1120	Middle East Civilization
HIST 1130	Introduction To Historical Thinking (WAC)
HIST 1200	
HIST 2010	America To 1865
HIST 2020	America From 1865
HIST 2050	Ancient Greece
HIST 2060	Ancient Rome

C. Students may choose any other core Arts and Humanities courses to complete additional Core Curriculum requirements, including courses that fulfill a Multicultural requirement, with the following restrictions:

1. Students majoring in the Social Sciences and Interdisciplinary Studies will take two courses (6 hours), one in the Arts and one in the Humanities in addition to those taken to meet the English composition, literature and history requirements listed above.

Arts and Humanities electives (for students majoring in Social Sciences and Interdisciplinary Studies):

Students may select courses from art, art history, communication, English, film, foreign languages, history, humanities, music, philosophy, religious studies and theatre. The complete list of Arts and Humanities core courses can be found in the General part of the undergraduate catalog, in the Core Curriculum section.

2. Students majoring in the Humanities (rather than the Arts) are required to complete one Fine Arts course.

Fine Arts (for Humanities majors)

Select 3 hours (course must be an appreciation or theory course, not a studio or skills course.)

**4. Natural Sciences (University of Toledo Core Curriculum and College of Arts and Letters requirement)**

UToledo Core Curriculum requirement is two courses for a minimum of 6 hours and must include one laboratory course. Students must take two courses from two different departments. The complete list of Natural Science core courses can be found in the General part of the undergraduate catalog, in the Core Curriculum section.

**5. Social Sciences (University of Toledo Core Curriculum and College of Arts and Letters requirement)**

UToledo Core Curriculum requirement is two courses for six hours in two different disciplines; Students majoring in Arts and Humanities will take nine hours of courses in Social Sciences. Students may select Social Science courses that also will meet a multicultural requirement. Students may select courses from anthropology, economics, geography, political science, psychology, and sociology. The complete list of Social Science core courses can be found in the General part of the undergraduate catalog, in the Core Curriculum section

**6. Foreign Language (College of Arts and Letters requirement)**

Select one of the following options:<sup>6</sup>

Option 1 - Demonstrate proficiency in a single foreign language through the intermediate level.<sup>7,8</sup>

ARBC 2150	Intermediate Arabic II
CHIN 2150	Intermediate Chinese II
FREN 2150	Intermediate French II
GERM 2150	Intermediate German II

JAPN 2150	Intermediate Japanese II
SPAN 2150	Intermediate Spanish II

Option 2 - Complete study in a single language through 1120 or demonstrate competency to that level, AND complete either 6 additional hours of culture courses, or complete one semester in a study abroad program. Refer to the degree audit for a complete list of approved culture courses.<sup>9</sup>

- <sup>1</sup> Students must pass Composition I and Composition II with a grade of C or better.
- <sup>2</sup> Non-native speakers will take an English placement test to determine appropriate level.
- <sup>3</sup> Non-Native speakers of English should choose an ESL designated section of ENGL 1110.
- <sup>4</sup> Students are placed into mathematics courses by ACT scores or placement tests.
- <sup>5</sup> May replace with any mathematics course greater than MATH 1180. Some majors require different Math courses - check with your Advisor.
- <sup>6</sup> Students pursuing the BM in Music or the BFA in Studio Art are exempt from this requirement.
- <sup>7</sup> Students are placed into foreign language courses through placement testing (see footnote 10.) Every students is required to demonstrate proficiency in a single foreign language (Arabic, Chinese, French, German, Japanese, Latin or Spanish) through the intermediate level (foreign language 2150) in option 1, or through the Elementary level (1120) in option 2, by successfully completing the foreign language course at this level, or by achieving an appropriate score on a proficiency/placement test administered by the Department of World Languages and Cultures that reflects the equivalent. Students may, alternatively, complete the sequence of SPED to fulfill this requirement.
- <sup>8</sup> Students beginning a foreign language should enroll in their chosen language at the elementary I level (1110) and take four semesters of foreign language if pursuing option 1, and two semesters if pursuing option 2. Those continuing a foreign language or attempting to demonstrate competency by examination should take a proficiency/ placement test. Students with two or more years of French, German or Spanish in high school who place below an intermediate course may enroll in an intensive review course (1500) that covers the material in the first two semesters (1110 and 1120), and then complete the intermediate level courses (2140 and 2150.)
- <sup>9</sup> Culture courses selected to fulfill this requirement will not simultaneously satisfy core curriculum US Diversity or Non-US Diversity requirements.

## Honors

- Departmental Honors in Arts and Letters (p. 20)
- Student Selection and Admission for the Jesup Scott Honors College (p. 20)
- Requirements for the Jesup Scott Honors College (p. 20)
- Honors Courses (HON) (p. 20)

Honors work in the College of Arts and Letters is available to academically talented and highly motivated students. Students may pursue Departmental Honors only, offered by individual departments within the college, or they may pursue College Honors, which is offered in conjunction with the Jesup Scott Honors College (p. 503) and requires



students to complete both Departmental Honors and the full JSHC requirements.

## DEPARTMENTAL HONORS IN ARTS AND LETTERS

All departments in the College of Arts and Letters offer Departmental Honors, which requires the successful completion of an honors thesis, creative activity, or original research project in the student's major that is supervised by a faculty member in that department. Each College of Arts and Letters department sets its own specific requirements for Departmental Honors, and those requirements are described under the departmental entries in this catalog. Students who meet the criteria for Departmental Honors in their major can pursue Departmental Honors without being enrolled in the Jesup Scott Honors College.

## STUDENT SELECTION AND ADMISSION FOR THE JESUP SCOTT HONORS COLLEGE

Students majoring within the College of Arts and Letters may apply to the Jesup Scott Honors College in order to receive College Honors. Students entering directly from high school are admitted based on a review of application materials, which include a high school transcript, references, an essay, and an extracurricular resume. Students with a high school GPA of 3.75 or higher are encouraged to apply. Highly motivated students with a minimum high school GPA of 3.5 also are considered for admission to the program.

Currently enrolled University of Toledo students and transfer students may apply for admission to the College Honors Program if they have completed at least 15, but not more than 60, graded semester hours of college work, and earned a minimum GPA of 3.3 (4.0 scale).

Students are admitted to the College Honors program on a space-available basis. For further details on the Jesup Scott Honors College, please see: <http://www.utoledo.edu/honors/>.

## REQUIREMENTS FOR THE JESUP SCOTT HONORS COLLEGE

Please see the Jesup Scott Honors College requirements here for a full overview: <https://catalog.utoledo.edu/undergraduate/jesup-scott-honors/jesup-scott-honors-college-program/>

Note that College of Arts and Letters students enrolled in the Jesup Scott Honors College are required to take Departmental Honors as part of the JSHC curriculum. Double majors in JSHC need fulfill Departmental Honors in only one of their majors.

## HONORS COURSES (HON)

Honors courses are of two kinds - those offered by the Jesup Scott Honors College and those offered by various departments and colleges. Consult the appropriate portion of this catalog for a listing.

# Department of Art

**ACCREDITING BODY: National Association of Schools of Arts and Design (NASAD)**

Barbara WF Miner, Chair

The Department of Art, housed in the Center for the Visual Arts, and the Center for Sculptural Studies on the museum campus, features new

instructional facilities with state-of-the-art studios and classrooms. With the exception of some introductory courses in art and art history, all instruction takes place at the museum campus, where day and evening courses are regularly scheduled. The museum campus is connected with the Main Campus by regularly scheduled student shuttle buses. Parking at the museum campus is available to students and faculty who have valid UT I.D.s.

## Advanced Placement

Please see Registrar's website for information on Advanced Placement ([http://www.utoledo.edu/offices/registrar/student\\_records/advan\\_credits.html](http://www.utoledo.edu/offices/registrar/student_records/advan_credits.html)).

## Degrees Offered

The Department of Art is a fully accredited member of the National Association of Schools of Art and Design, and its degree requirements are in accordance with the latest published regulations of that association.

The Department of Art, located on the Toledo Museum of Art campus, offers courses of study leading to four undergraduate degrees and one graduate degree:

- B.A. in Art History (p. 26)
- B.A. in Visual Art (p. 29)
- B.F.A. in Studio Art (p. 32)
- Bachelor in Art Education (p. 40)
- Graphic Design Certificate (p. 40)
- Minor in Art History (p. 40)
- Minor in Community Arts Education (p. 41)
- Minor in Graphic Design (p. 41)
- Minor in Studio Art (p. 41)

### AED 2100 Art Education for the Pre-Primary and Primary Child

[3 credit hours]

Focuses on the supporting the young child's capacity to create, perceive and appreciate the visual arts. Orientation to materials and instructional techniques will be explored through studio and gallery instruction with a young child.

**Term Offered:** Spring, Fall

### AED 3100 Art Education for the Pre-Primary and Primary Child

[3 credit hours]

Focuses on the supporting the young child's capacity to create, perceive and appreciate the visual arts. Orientation to materials and instructional techniques will be explored through studio and gallery instruction with a young child.

**Term Offered:** Spring, Fall

### AED 3130 Multi-Cultural Approaches For Art Appreciation

[3 credit hours]

An investigation of innovative methods for teaching multi-cultural understanding through art history and art appreciation. The Toledo Museum of Art's collection will be the focus for the course.

**Term Offered:** Summer, Fall  
Multicultural US Diversity

**AED 3300 Crafts In Art**

[3 credit hours]

This course is designed to investigate the philosophy and variety of craft processes used to make art. Topics that may be covered include fibers, metal crafts, ceramics, paper making.

**Term Offered:** Spring, Summer, Fall**AED 3500 Innovations In Art Education**

[3 credit hours]

An introduction to new directions in secondary art education. Current views of philosophy and psychology are implemented as the rationale for contemporary curricula in art education. Field experience is to be arranged.

**Term Offered:** Spring**AED 3940 Art Field Placements In The Elementary School**

[1-4 credit hours]

Field placement in an elementary school setting allowing the undergraduate student, with art teacher approval, to develop a course of study that will satisfy the special needs of the student in art education.

**Term Offered:** Spring, Summer, Fall**AED 4140 Art Education For The Special Child**

[3 credit hours]

This course introduces and surveys a wide variety of art strategies and instructional adaptations for use with the child with physical, emotional or mental differences.

**Term Offered:** Spring, Fall**AED 4300 Media And Methods In Therapeutic Art**

[3 credit hours]

An investigation into group and individual processes as they relate to art media and methods in therapeutic art will be presented. Experiences in art media will be explored.

**Prerequisites:** AED 4560 with a minimum grade of D-**Term Offered:** Spring**AED 4450 Curriculum In Art Education**

[3 credit hours]

An exploration of discipline-based art education (DBAE) philosophy in the schools. Field placement in the Toledo Museum of Art's Youth program and the area schools will be used to implement the theoretical base.

**Term Offered:** Spring, Fall**AED 4560 Introduction To Therapeutic Art**

[3 credit hours]

This course will introduce students to therapeutic art through investigation of theories in art education and art therapy. Students will explore art media and methods in therapeutic art programming.

**Term Offered:** Fall**AED 4900 Seminar In Professional Development**

[2 credit hours]

This seminar is designed to enhance the student teacher's final preparation for employment. Professional issues, ethical behavior, interview techniques and other processes and concerns involved in entry into the profession will be examined.

**Corequisites:** AED 4930**Term Offered:** Spring, Fall**AED 4930 Student Teaching In Art**

[6-12 credit hours]

Planned field experiences in public school classrooms under the direction of experienced art teachers. Gradual acceptance of full responsibility by student teacher. A scheduled time will be included to facilitating professional practices.

**Prerequisites:** Upper Division with a score of 1**Term Offered:** Spring, Fall**AED 4990 Individual Study In Art Education For The Undergraduate Student**

[1-4 credit hours]

Individual study is designed to provide the student the opportunity to work individually on professional problems under the direction of the art education staff without formal class meetings.

**Term Offered:** Spring, Summer, Fall**ART 1030 Multi-Cultural Art Appreciation A Lived Game of Contemporary Art**

[3 credit hours]

This course uses a narrative framework drawn from Alternate Reality Games (ARGs) so that it is not just a venue for being told about or discussing artworks, but for experiencing them. In the course, encounters with art in virtual and real spaces are reflected on through an online journal, image collections, the creation of visual artifacts, and individualized feedback on each student's own work from peers. Not for major credit in Art, Art History or Art Education.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**ART 1040 Foundations of Art Studio Technology**

[3 credit hours]

Historical and hands-on overview of human interaction with tools; from simple levers to 3D printers and CNC machines. Through studio projects, research, assigned readings and written analysis, students will integrate philosophical and practical concepts. Students will acquire skills and understanding of the tools, techniques and collaborative processes necessary to respond to a rapidly changing global economy and job market. Web-assisted course.

**Term Offered:** Spring, Fall**ART 1050 Foundations of 2D Design**

[3 credit hours]

Exploration of design concepts, formal and conceptual skills, materials and color, media manipulation and study of 2-dimensional surfaces. Discussion of contemporary studio practices and critiquing skills included. Web-assisted course. Humanities core course.

**Term Offered:** Spring, Fall**ART 1060 Foundations of 3D Design**

[3 credit hours]

Exploration of design concepts, formal and conceptual skills, materials and color, through media manipulation and study of three-dimensional space. Discussion of contemporary studio practices and critiquing skills included. Web-assisted course. Humanities core course.

**Term Offered:** Spring, Fall**ART 1070 Foundations of Digital Media**

[3 credit hours]

This course introduces students to the basic digital technologies of contemporary art and design. Web-assisted course.

**Term Offered:** Spring, Summer, Fall

**ART 1080 Foundations of Drawing I**

[3 credit hours]

Various approaches to drawing intended to develop skills, perception, and visual acuity. Introduction to a broad range of subject matter and a variety of graphic media. Web-assisted course. Humanities core course.

**Term Offered:** Spring, Summer, Fall**ART 1090 Foundations of Drawing II**

[3 credit hours]

Dimensional, perspective and volumetric drawing applied to natural, man-made forms, environment and the figure. Rendering techniques, skills and exploration of media integrated with formal composition. Web-assisted course. Humanities core course.

**Prerequisites:** ART 1080 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 1990 Special Topics in Art**

[3 credit hours]

Group study in studio topics by various instructors. Web-assisted course.

May be repeated under different course titles.

**Term Offered:** Spring, Summer, Fall**ART 2010 Graphic Design: Print**

[3 credit hours]

This course covers the basics of graphic design for print media, introducing typography, graphics, and publication design, using bitmap, vector, typography, and page layout programs. This class is a web-assisted course.

**Prerequisites:** ART 1070 with a minimum grade of D-**Term Offered:** Spring**ART 2020 Graphic Design: Web**

[3 credit hours]

This course covers interactive practices in graphic design, utilizing HTML, CSS, creative coding, 2D animation, sound, and video applications for web-based media. This class is a web-assisted course.

**Prerequisites:** ART 1070 with a minimum grade of D-**Term Offered:** Fall**ART 2030 Introduction to Photography**

[3 credit hours]

An introduction to photography as a fine art medium; includes digital and traditional camera operations, printing processes, presentation techniques and historic and contemporary photographic concerns. Web-assisted course.

**Term Offered:** Spring, Summer, Fall**ART 2100 Life Drawing**

[3 credit hours]

Development of visual and technical skills necessary to represent the figure, working from live models. Presentations focused on artistic understanding of the human body in architectural space, proportion, volume, and anatomy. Web-assisted course.

**Prerequisites:** ART 1090 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 2110 Introduction to Printmaking**

[3 credit hours]

Study of basic print materials and media, including relief, monoprint, planographic and intaglio process, general print shop skills, and safety practices. The course forms the basis for further exploration. Web-assisted course.

**Prerequisites:** ART 1050 with a minimum grade of D- and ART 1080 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 2200 Introduction to Sculpture**

[3 credit hours]

An exploration of the application of traditional methods of sculpture making to additive, subtractive, constructive, and replicative processes with clay, plaster, wood, stone, and metal. Formal and expressive content addressed. Web-assisted course.

**Prerequisites:** (ART 1040 with a minimum grade of D- or ART 1060 with a minimum grade of D-)**Term Offered:** Spring, Fall**ART 2210 Introduction to Ceramics**

[3 credit hours]

Basic ceramic techniques explored. Introduction to hand-building, simple mold techniques and the potter's wheel. Basic glaze and clay body formulation and firing procedures. Web-assisted course.

**Term Offered:** Spring, Fall**ART 2300 Introduction to Painting**

[3 credit hours]

Introduction and overview of painting materials and techniques; may include oil, acrylic, and watercolor media. Explores design concepts, formal and conceptual skills, and color theory. Web-assisted course.

**Prerequisites:** ART 1050 with a minimum grade of D- or ART 1090 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 2800 Visual Literacy-Data Visualization**

[3 credit hours]

This course introduces students to the concepts of visual literacy and data visualization. Students will learn to observe and analyze imagery and data. Web-assisted course.

**Term Offered:** Spring, Fall**ART 3000 Photography: Topics**

[3 credit hours]

Varying studio topics in fine art photography and digital imaging, including Digital Photography Expanded and B&W photography. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2030 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 3100 Printmaking: Topics**

[3 credit hours]

Studio courses focusing on one of the following disciplines: drawing, painting, or printmaking, within separate class settings. Courses explore various topics and techniques. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2110 with a minimum grade of D-**Term Offered:** Spring, Fall

**ART 3110 2D: Topics**

[3 credit hours]

Studio courses in any of the following disciplines: drawing, painting, or printmaking, or mixed media within separate class settings. Courses may explore various concepts and processes relating to the creation of works of art. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2110 with a minimum grade of D- or ART 2300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 3120 Painting: Topics**

[3 credit hours]

Studio course in one of the following disciplines: drawing, painting, or printmaking, within separate class settings. Courses deal with various concepts and topics. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2300 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ART 3200 Sculpture: Topics**

[3 credit hours]

Varying studio topics in 3D art, including the creation of works and the exploration of new models of sculpture including installation. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2200 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ART 3210 Ceramics: Topics**

[3 credit hours]

Varying topics in ceramics creation and processes, including ceramics form execution. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2210 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 3400 Concepts in Art, Studio and Theory**

[3 credit hours]

This course surveys advanced theories and practices of contemporary art while creating a forum for engaging visiting artists and the broader art community. The course prepares studio art majors for their degree capstone. Web-assisted course.

**Prerequisites:** ART 1050 with a minimum grade of D- and ARTH 2050 with a minimum grade of D- or ARTH 2060 with a minimum grade of D-

**Term Offered:** Fall

**ART 3850 Gallery Practices**

[3 credit hours]

Workshop covering the planning, installing, promoting, and documenting of exhibitions. Offers hands-on training and directly engages students in all aspects of UT's CVA Gallery operations. May be offered as WAC. Web-assisted course.

**Term Offered:** Spring, Fall

**ART 3900 Advanced Graphic Design: Topic**

[3 credit hours]

Advanced studio courses in graphic and interactive design within separate class settings. Topics such as publication design, identity and branding, merchandise design, data visualization, and environmental graphics may be covered. May be repeated under differing course titles. Web assisted course. Prerequisite: ART 2020 Web-assisted course.

**Prerequisites:** ART 2020 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 3910 Outsider Art and Community Practice**

[3 credit hours]

This course will study the role and advantage of community-based "Supported Studios"; art studios facilitated by practicing artists specifically attuned to the needs of people with disabilities. Students will study the history and contemporary positioning of such creative spaces and the relevant pedagogical imperatives inherent in the delivery of services. Students will also research evolving definitions of "Outsider Art" and "Outsider Artists". A variety of methods of study, including visiting working Supported Studios will be employed.

**Term Offered:** Spring, Fall

**ART 3950 Contemporary Design Methods and Practices**

[3 credit hours]

Survey of methods, techniques, and professional practices in new media design including: historical overview, creative and design processes, new media design environments, marketing, commerce, workflow, and collaboration. Web-assisted course. May be offered as WAC

**Term Offered:** Fall

**ART 4000 Advanced Photography: Topics**

[3 credit hours]

Advanced studio courses in fine art photography and digital imaging, within separate class settings that may include a variety of processes and topics. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2030 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 4010 Game Design: Topic**

[3 credit hours]

Advanced studio courses in digital game design and interactive media within separate class settings. Courses focus on developing interactive artworks using 2D and 3D game design tools. Topics such as virtual reality, coding, graphics, character design, interface, interaction, and sound may be covered. May be repeated under differing course titles. Web assisted course.

**Prerequisites:** ART 3010 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 4020 Time, Motion, Space: Topics**

[3 credit hours]

Advanced studio topics in time-based new media, within separate class settings that may include a variety of media and topics, such as 3D modeling, rendering, digital video, and compositing. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2010 (may be taken concurrently) with a minimum grade of D- or ART 2020 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 4100 Advanced Printmaking: Topic**

[3 credit hours]

Advanced studio courses focusing on printmaking and related media within separate class settings. Courses explore various topics and techniques. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2110 with a minimum grade of D- and ART 2300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 4110 Advanced 2D: Topics**

[3 credit hours]

Advanced studio course in one or more of these disciplines: drawing, painting, printmaking, or mixed media within separate class settings. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2110 with a minimum grade of D- and ART 2300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 4120 Advanced Painting: Topic**

[3 credit hours]

Advanced studio courses in painting and related media within separate class settings. Courses deal with various concepts and topics. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2110 with a minimum grade of D- and ART 2300 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ART 4200 Advanced Sculpture: Topic**

[3 credit hours]

Advanced studio courses in 3D form creation that, within separate class settings, address a variety of processes and topics. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 1050 with a minimum grade of D- and ART 1060 (may be taken concurrently) with a minimum grade of D- and ART 1080 with a minimum grade of D- and ART 1090 with a minimum grade of D- and ART 2200 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ART 4210 Advanced Ceramics: Topic**

[3 credit hours]

Advanced studio topics in 3D art include the creation of works and the further exploration of emerging issues in contemporary ceramics. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2210 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 4300 Bio-Design Challenge**

[3 credit hours]

Interdisciplinary teams research and prototype solutions to complex global challenges. Student teams may include but are not limited to: Biology, Art & Design, or Engineering. Students fabricate experimental design solutions in response to challenges that combine design, biotechnology and biomaterials with a focus on future applications. The course culminates in a locally juried competition, the winning team travels to the annual Biodesign Summit at which students present and compete for prizes in an international forum.

**Term Offered:** Spring, Fall

**ART 4360 Installation Art**

[3 credit hours]

Study of altering a defined physical and psychological space as an art medium. Includes a study of the history of installations.

**Prerequisites:** ART 2200 with a minimum grade of D- or ART 2210 with a minimum grade of D- or ART 2100 with a minimum grade of D- or ART 2110 with a minimum grade of D- or ART 2300 with a minimum grade of D- or ART 2010 with a minimum grade of D- or ART 2030 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 4370 Wearable Conditions**

[3 credit hours]

In this course, students will experiment with and combine media through technology and traditional construction methods to enhance their abilities to see form and to develop personal and group visual language. Students are encouraged to become more effective and original communicators through the experience of using materials in innovative ways and through the examination of the possibilities of these materials for creative expression.

**Prerequisites:** ART 2200 with a minimum grade of D- or ART 2210 with a minimum grade of D- or ART 2100 with a minimum grade of D- or ART 2110 with a minimum grade of D- or ART 2300 with a minimum grade of D- or ART 2010 with a minimum grade of D- or ART 2030 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 4380 Mixed Media: Topics**

[3 credit hours]

Studio course in one of the following disciplines: drawing, painting, or printmaking, within separate class settings. Courses deal with various concepts and topics. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2200 with a minimum grade of D- or ART 2210 with a minimum grade of D- or ART 2100 with a minimum grade of D- or ART 2110 with a minimum grade of D- or ART 2300 with a minimum grade of D- or ART 2010 with a minimum grade of D- or ART 2030 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 4400 BFA Thesis**

[3 credit hours]

A capstone course to be taken by BFA students during the fall semester that creates a context for accomplishing a professional gallery exhibition with supporting materials. Web-assisted course.

**Term Offered:** Spring, Fall

**ART 4410 BA Thesis Project**

[3 credit hours]

A capstone course taken by BAVA students resulting in topic-based projects and published bodies of work relating to their area(s) of focus. Web-assisted course.

**Term Offered:** Spring

**ART 4850 Professional Practices**

[3 credit hours]

Professional skills WAC course for advanced art students. Topics include portfolios, resumes, taxes, contracts, shipping, documenting artwork, artists' statements, exhibitions/competitions, galleries, artists' talks and more. Web-assisted course.

**Term Offered:** Fall



**ART 4910 Independent Study**

[1-6 credit hours]

Individual study into special studio problems. Weekly critiques. Every semester. Time arranged. Web-assisted course. May be repeated as topic varies.

**Term Offered:** Spring, Summer, Fall**ART 4940 Internship**

[1-4 credit hours]

Student works in professional venue related to a diversity of art fields or endeavors. Web-assisted course. May be repeated for a maximum of 8 credit hours.

**Term Offered:** Spring, Summer, Fall**ART 4950 Design Project: Topics**

[3 credit hours]

Working with AMP students and art history faculty, students will create an exhibition or special project related to topic studied in ARTH 3950. Web-assisted course.

**Prerequisites:** ART 3900 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 4990 Special Studies**

[1-6 credit hours]

Group study in studio topics by various instructors. May be repeated when the topic varies.

**ARTH 1500 Art In History**

[3 credit hours]

Introduction to the aesthetic, cultural and social interpretation of works of art and architecture, and to the historical relationships of artists, patrons, and audiences in art's production and purposes. Web-assisted course. Humanities core course. (Not for major credit in Art History, Studio Art or Art Education).

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**ARTH 2050 History of Western Art I**

[3 credit hours]

Introduces students to major styles of western art from prehistoric to Early Renaissance. Students will learn to analyze art in terms of formal, cultural, historical, and iconographic contexts. Web-assisted course.

**Term Offered:** Spring, Fall**ARTH 2060 History of Western Art II**

[3 credit hours]

Introduces students to major styles of western art from the Renaissance through the modern era. Students will learn to analyze art in terms of formal, cultural, historical, and iconographic contexts. Web-assisted course.

**Term Offered:** Spring, Fall**ARTH 2080 History Of Modern Art**

[3 credit hours]

European and American art 1700-1940, from the Rococo through Romanticism, Impressionism, Expressionism, Cubism, Dada, and Surrealism. Web-assisted course. Humanities core course.

**Term Offered:** Spring

Core Arts &amp; Humanities

**ARTH 2200 Ethnographic Art**

[3 credit hours]

Contextual exploration of traditional art forms in the principle cultures of the Americas, Africa and Oceania. Web-assisted course.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**ARTH 2550 History of Graphic Design**

[3 credit hours]

History of Graphic Design introduces students to the history and theory of graphic design from the Roman codex to the modern poster. Topics examined include: how imagery interacts with text aesthetically and visually, the logic and development of typefaces, and the relationship and importance of graphic design to social and political developments throughout history. This three-credit course addresses graphic design from Western cultures and dynamic eras. ARTH 2550 partially fulfills the curricular requirements in Humanities and Fine Arts and is an elective within the Department of Art.

Core Arts &amp; Humanities

**ARTH 2980 Special Topics**

[1-3 credit hours]

Topics in art history selected by instructor; may be repeated when topic varies. Web-assisted course.

**Term Offered:** Spring, Fall**ARTH 3080 The Power of Visual Persuasion**

[3 credit hours]

This course is designed for the non-specialist. The course is intended to increase understanding and appreciation of visual culture through readings, recorded lectures and documentary films, discussion, reflective and critical writing, and a visit to a local or regional museum. The development of cognitive and critical processes, as they relate to visual culture, is emphasized.

**Term Offered:** Spring, Fall**ARTH 3230 Topics In American Art**

[3 credit hours]

Special topics in the history of American art or architecture. May be repeated when topic varies. Web-assisted course. May be offered as WAC.

**Term Offered:** Spring, Fall**ARTH 3250 Topics In Asian Art**

[3 credit hours]

Special topics in the history of Asian art or architecture; may be repeated when topic varies. Web-assisted course.

**Term Offered:** Spring, Fall**ARTH 3300 African Art**

[3 credit hours]

Study of the diversity of African art. The course will emphasize region and style with focus upon the collections of African art in the Toledo Museum of Art. Web-assisted course.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**ARTH 3350 Ancient Art Of The Americas**

[3 credit hours]

A course that focuses on the artifacts produced by the indigenous populations of the Americas before the arrival of Columbus in the New World. Web-assisted course.

**Term Offered:** Spring, Summer, Fall  
Multicultural Non-US Diversity

**ARTH 3400 Contemporary Art**

[3 credit hours]

This WAC course introduces students to art of the 20th and 21st centuries, relating recent makers and movements to critical, cultural, and social issues. Web-assisted course.

**Term Offered:** Spring, Fall

**ARTH 3500 History Of Photography**

[3 credit hours]

An in-depth study of the history of photography. Web-assisted course.

**Term Offered:** Fall

**ARTH 3600 History Of New Media**

[3 credit hours]

This course explores the development of technology as an art medium with a focus on significant historical examples from the 19th through the 21st centuries. Web-assisted course.

**Term Offered:** Fall

**ARTH 3750 Art and Disease - WAC**

[3 credit hours]

This WAC course considers how objects of material culture (film, photography, painting, sculpture, etc.) have intersected with disease while studying disease-related texts and histories of contagion (e.g., AIDS). Web-assisted course.

**Term Offered:** Spring

**ARTH 3900 Art Museum Practices**

[3 credit hours]

Overview of issues and professional practices in art museums, including curatorial responsibilities, interpretation of collections, conceptualization and design of exhibitions, development, education, marketing, and administration. Web-assisted course.

**Term Offered:** Spring, Fall

**ARTH 3950 AMP**

[3 credit hours]

Study of art historical topic theme relating to Toledo Museum of Art works. Precedes ARTH 3960, Exhibition course, but may be taken independently. Web-assisted course. May be repeated when topic varies.

**Term Offered:** Spring, Fall

**ARTH 3960 TMA Exhibit**

[3 credit hours]

Working with faculty and museum professionals, students create a Toledo Museum of Art exhibition relating to topic studied in ARTH 3950. Web-assisted course. May be repeated when topic varies. Permission of Instructor.

**Prerequisites:** ARTH 3900 with a minimum grade of D- and ARTH 3950 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ARTH 3980 Special Studies**

[3-5 credit hours]

Topics in art history selected by the instructor. Web-assisted course. May be repeated when topic varies.

**Term Offered:** Spring, Fall

**ARTH 4500 Contemporary Art And Theory**

[3 credit hours]

A WAC course offering study of 20th and 21st century critical theory in relation to contemporary art makers and social issues, with a consideration of modernist versus postmodernist eras. Web-assisted course.

**Term Offered:** Spring

**ARTH 4910 Senior Thesis I**

[2 credit hours]

Directed research in the history of art for the Senior Thesis. May only be taken with consent of instructor; see department for application form. Must be taken consecutively with ARTH 4920, Senior Thesis II. Web-assisted course.

**Term Offered:** Spring, Fall

**ARTH 4920 Senior Thesis II**

[2 credit hours]

Writing the Senior Thesis. May only be taken after successful completion of ARTH 4910, Senior Thesis I, and with instructor's consent. See Department for application form. Web-assisted course.

**Prerequisites:** ARTH 4910 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ARTH 4940 Internship**

[1-4 credit hours]

Student works in professional venue related to a diversity of art fields or endeavors. Web-assisted course. May be repeated for a maximum of 8 credit hours.

**Term Offered:** Spring, Summer, Fall

**ARTH 4980 Special Topics**

[1-5 credit hours]

Topics in art history selected by instructor; may be repeated when topic varies. Web-assisted course. May be offered as WAC.

**ARTH 4990 Independent Study In Art History**

[1-4 credit hours]

Independent Study in special problems of art history. Web-assisted course. May be repeated when topic varies.

**Term Offered:** Spring, Summer, Fall

## B.A. in Art History

Thor Mednick, Ph.D., Head, Art History

Thor Mednick, Ph.D., Head, Art Museum Practices concentration

Mysoon Rizk, Thor Mednick: Undergraduate Advisors

The bachelor of arts program provides a foundation in the history of art and architecture through introductory course work in the styles, subjects and social history of Western and non-Western art and architecture, and through advanced course work and optional directed study in art, architecture, theory and criticism. The program makes extensive use of the collections and research facilities of the Toledo Museum of Art. Internships for credit may be arranged with the Toledo Museum of Art and with other local arts organizations.

The Art History program also offers a B.A. in Art History degree with a concentration in Art Museum Practices (AMP) with a focus on professional standards, practices and procedures used in contemporary museums of art. In this unique program, students take maximum advantage of their remarkably advantageous relationship with the Toledo Museum of Art, an institution of international stature.

The curriculum leading to the B.A. in Art History requires a minimum of 33 hours of art history courses and a maximum of 45 hours, which must include the following:

Code	Title	Hours
<b>Core Courses</b>		
ARTH 2050	History of Western Art I <sup>1</sup>	3
ARTH 2060	History of Western Art II <sup>1</sup>	3
Select at least one of the following courses in non-Western art:		3
ARTH 2100		
ARTH 2200	Ethnographic Art	
ARTH 3250	Topics In Asian Art	
ARTH 3300	African Art	
ARTH 3350	Ancient Art Of The Americas	
ARTH 2080	History Of Modern Art	3
ARTH 3400	Contemporary Art	3
Art History Electives		18
<b>Total Hours</b>		<b>33</b>

<sup>1</sup> A survey of the history of Western art composed of a sequence of two three-credit hour courses. The courses may be taken in any order.

Majors with a GPA in the major of at least 3.00 may apply to pursue up to six hours in Independent Study (ARTH 4990), which requires the permission of an art history faculty member who will direct the Independent Study project.

The art history major also must take 18 hours of related courses, which must be chosen from courses acceptable for major credit in studio art, anthropology, classical civilization, literature courses in English or in a foreign or classical language (in addition to the college language requirement), basic courses in a second foreign language, history, music history or literature, philosophy or religion, theater or film history, or in other areas approved by the Advisor.

## Concentration in Art Museum Practices (AMP)

Students interested in learning about art museums or pursuing museum-based careers may elect to pursue the Concentration in Art Museum Practices (AMP), whose course work may be part of the minimum 33 credit hours needed for the B.A. in Art History.

(Students not majoring in Art History and who qualify may participate in AMP courses, but are not eligible for the concentration.) Completion of the Concentration in Art Museum Practices requires an overall GPA of at least 3.0 and a GPA in the Art History major of 3.20.

The Art Museum Practices Concentration consists of 12 hours in the major (in addition to the required courses for the B.A., for a minimum of 33 hours in Art History) and 3 hours in the related area:

As part of the Art History major a student pursuing the AMP concentration is required to take:

## CONCENTRATION IN ART MUSEUM PRACTICES (AMP)

Students interested in learning about art museums or pursuing museum-based careers may elect to pursue the Concentration in Art Museum Practices (AMP), whose course work may be part of the minimum 33 credit hours needed for the B.A. in Art History.

(Students not majoring in Art History and who qualify may participate in AMP courses, but are not eligible for the concentration.) Completion of the Concentration in Art Museum Practices requires an overall GPA of at least 3.0 and a GPA in the Art History major of 3.20.

The Art Museum Practices Concentration consists of 12 hours in the major (in addition to the required courses for the B.A., for a minimum of 33 hours in Art History) and 3 hours in the related area:

As part of the Art History major a student pursuing the AMP concentration is required to take:

Code	Title	Hours
ARTH 3900	Art Museum Practices	3
ARTH 3950	AMP	3
ARTH 3960	TMA Exhibit	3
ARTH 4940	Internship	3
<i>Related Area</i>		
ART 3950	Contemporary Design Methods and Practices	3
<b>Total Hours</b>		<b>15</b>

### Plan of study for:

- **Art History** (p. 27)
- **Art History with concentration in Art Museum Practices (AMP)** (p. 28)

### Art History

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

First Term	Hours	
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
ARTH 2050	History of Western Art I	3
MATH 1180	Reasoning With Mathematics	3
Arts/Humanities Core (History)		3
Elementary Foreign Language I		4
<b>Hours</b>		<b>17</b>
Second Term	Hours	
ARTH 2060	History of Western Art II	3

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Social Sciences Core		3
Natural Sciences Core		3
Elementary Foreign Language II		4
<b>Hours</b>		<b>16</b>

**Third Term**

Select one of the following Non-Western Art courses:		3
ARTH 2100		
ARTH 2200	Ethnographic Art	
ARTH 3300	African Art	
ENGL 2710-ENGL 2800 Arts/Humanities Core (English Lit)		3
Intermediate Foreign Language I or approved culture course		3
Social Sciences Core		3
Elective		3
<b>Hours</b>		<b>15</b>

**Fourth Term**

ARTH 2080	History Of Modern Art	3
ARTH elective		3
Intermediate Foreign Language II or approved culture course		3
Related or minor course		3
Natural Sciences Core		3
Natural Sciences core (lab)		1
<b>Special Considerations</b> <sup>1</sup>		
<b>Hours</b>		<b>16</b>

**Fifth Term**

ARTH 3400	Contemporary Art (or ARTH elective)	3
ARTH Art History Elective or AMP Concentration <sup>2</sup>		3
Diversity of US		3
Select one of the following: <sup>2</sup>		3
ARTH 3950	AMP (AMP Concentration)	
Related or minor course		
Elective		3
<b>Hours</b>		<b>15</b>

**Sixth Term**

ARTH 4500	Contemporary Art And Theory (or ARTH elective)	3
ARTH Art History Elective or AMP Concentration <sup>2</sup>		3
Related or minor course		3
Related or minor course		3
Elective		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

ARTH Art History elective or AMP Concentration <sup>2</sup>		3
Related or minor course		3
Communication Required Elective		3
Elective		3
Elective		3
<b>Hours</b>		<b>15</b>

**Eighth Term**

ARTH Art History elective or AMP Concentration <sup>2</sup>		3
Related or minor course		3
Elective		3
Elective		2
<b>Hours</b>		<b>11</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Must choose enough 3/4000 level courses in related and elective areas to meet graduation requirements. Students in the Art Museum Practices concentration have specific required electives.

<sup>2</sup> Art Museum Practices (AMP) Concentration requires ART 3950 and 13 credits from: ARTH 3900, ARTH 3950, ARTH 3960, ARTH 4940 or ARTH 4950.

**Art History with concentration in Art Museum Practices (AMP)**

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

<b>First Term</b>		<b>Hours</b>
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
ARTH 2050	History of Western Art I	3
MATH 1180	Reasoning With Mathematics	3
Arts/Humanities Core (History)		3
Elementary Foreign Language I		4
<b>Hours</b>		<b>17</b>

**Second Term**

ARTH 2060	History of Western Art II	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Social Sciences Core		3
Natural Sciences Core		3
Elementary Foreign Language II		4
<b>Hours</b>		<b>16</b>

**Third Term**

Select one of the following Non-Western Art courses:		3
ARTH 2100		
ARTH 2200	Ethnographic Art	
ARTH 3300	African Art	
ENGL 2710-ENGL 2800 Arts/Humanities Core (English Lit)		3
Intermediate Foreign Language I or approved culture course		3
Social Sciences Core		3
Elective		3
<b>Hours</b>		<b>15</b>

**Fourth Term**

ARTH 2080	History Of Modern Art	3
ARTH elective		3
Intermediate Foreign Language II or approved culture course		3
Related or minor course		3

Natural Sciences Core	3
Natural Sciences core (lab)	1
<b>Special Considerations</b> <sup>1</sup>	
<b>Hours</b>	<b>16</b>

**Fifth Term**

ARTH 3400 Contemporary Art (or ARTH elective)	3
ARTH Art History Elective or AMP Concentration <sup>2</sup>	3
Diversity of US	3
Select one of the following: <sup>2</sup>	3
ARTH 3950 AMP (AMP Concentration)	
Related or minor course	
Elective	3
<b>Hours</b>	<b>15</b>

**Sixth Term**

ARTH 4500 Contemporary Art And Theory (or ARTH elective)	3
ARTH Art History Elective or AMP Concentration <sup>2</sup>	3
Related or minor course	3
Related or minor course	3
Elective	3
<b>Hours</b>	<b>15</b>

**Seventh Term**

ARTH Art History elective or AMP Concentration <sup>2</sup>	3
Related or minor course	3
Communication Required Elective	3
Elective	3
Elective	3
<b>Hours</b>	<b>15</b>

**Eighth Term**

ARTH Art History elective or AMP Concentration <sup>2</sup>	3
Related or minor course	3
Elective	3
Elective	2
<b>Hours</b>	<b>11</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> Must choose enough 3/4000 level courses in related and elective areas to meet graduation requirements. Students in the Art Museum Practices concentration have specific required electives.

<sup>2</sup> Art Museum Practices (AMP) Concentration requires ART 3950 and 13 credits from: ARTH 3900, ARTH 3950, ARTH 3960, ARTH 4940 or ARTH 4950.

## Honors in Art History

To earn the B.A. degree with honors in art history, the student must fulfill all requirements listed above. In addition, the student must maintain an overall GPA of 3.0 and a GPA of 3.5 in the major. In addition to the major requirement for 33 hours in art history courses, the honors student must complete two, two-credit courses:

Code	Title	Hours
ARTH 4910	Senior Thesis I	2
ARTH 4920	Senior Thesis II	2
<b>Total Hours</b>		<b>4</b>

The thesis must be sponsored and supervised by a member of the art history faculty and shall be approved in final form by that faculty member.

- PLO 1: Identification abilities: Students will accurately identify works of art and/or architecture in terms of artist/architect/culture, title, location, and/or date.
- PLO 2: Analytic abilities: Students will analyze the form and content of works of art and/or architecture in relation to social, historical, and cultural contexts.
- PLO 3: Research skills: Students will identify and assess research sources, including effective uses of multiple global resources, to gather information about areas of interest specific to a topic and/or arena of study.
- PLO 4: Written communication skills: Students will be able to describe, interpret, and summarize ideas in written work through the effective use of content, syntax, and organization of information.
- PLO 5: Oral communication skills: Students will be able to describe, interpret, and summarize ideas in oral presentations through the effective use of content, syntax, and organization of information.

## B.A. in Visual Art

The Bachelor of Arts program in Visual Art provides students with a solid foundation in art through introductory courses in drawing, design and the history of art. The program offers advanced study in four areas of studio art as well as advanced work in art history. These department offerings are deeply integrated with the core curriculum of the Colleges of Arts and Letters, and Natural Sciences and Mathematics (humanities and sciences requirements and directed electives) with the purpose of using visual art as a special instrument for cognitive growth, knowledge discovery and cultural engagement. The B.A. in Visual Art is a special kind of liberal arts degree based in studio art - students seeking a professional degree should consider the B.F.A. in Studio Art degree program. Though there is no studio concentration offered, students may choose from 2D studies (drawing, printmaking, painting), 3D studies (sculpture, ceramics), and/or photography and digital media (photography, digital art, graphic design) for their advanced studio coursework.

The curriculum leading to the B.A. in Visual Art requires a minimum of 48 hours of courses in the major (50 hours maximum), which must include the following:

Code	Title	Hours
<b>Foundational Art Studies (Basic Skills Area)</b>		
ART 1040	Foundations of Art Studio Technology	3
ART 1050	Foundations of 2D Design	3
ART 1060	Foundations of 3D Design	3
ART 1070	Foundations of Digital Media	3
ART 1080	Foundations of Drawing I	3
ART 1090	Foundations of Drawing II	3
<b>Core Art Studies</b>		



*Guided Electives in 2D Core Studies*

Select one of the following: 3

ART 2100 Life Drawing

ART 2110 Introduction to Printmaking

ART 2300 Introduction to Painting

*Guided Electives in 3D Core Studies*

ART 2200 Introduction to Sculpture 3

or ART 2210 Introduction to Ceramics

*Guided Electives in New Media Core Studies*

ART 2010 Graphic Design: Print 3

or ART 2030 Introduction to Photography

**Advanced Art Studies<sup>2</sup>**

Select 18 credits total. A minimum of 12 credits must be completed at the 3000-4000 level. 18

ART 2010 Graphic Design: Print

ART 2020 Graphic Design: Web

ART 2030 Introduction to Photography

ART 2100 Life Drawing

ART 2110 Introduction to Printmaking

ART 2200 Introduction to Sculpture

ART 2210 Introduction to Ceramics

ART 2300 Introduction to Painting

ART 2800 Visual Literacy-Data Visualization

ART 3000 Photography: Topics

ART 3010

ART 3100 Printmaking: Topics

ART 3110 2D: Topics

ART 3120 Painting: Topics

ART 3200 Sculpture: Topics

ART 3210 Ceramics: Topics

ART 3850 Gallery Practices

ART 3900 Advanced Graphic Design: Topic

ART 3910 Outsider Art and Community Practice

ART 3950 Contemporary Design Methods and Practices

ART 3990

ART 4000 Advanced Photography: Topics

ART 4010 Game Design: Topic

ART 4020 Time, Motion, Space: Topics

ART 4100 Advanced Printmaking: Topic

ART 4110 Advanced 2D: Topics

ART 4120 Advanced Painting: Topic

ART 4200 Advanced Sculpture: Topic

ART 4210 Advanced Ceramics: Topic

ART 4300 Bio-Design Challenge

ART 4360 Installation Art

ART 4370 Wearable Conditions

ART 4380 Mixed Media: Topics

ART 4410 BA Thesis Project<sup>4</sup>

ART 4850 Professional Practices

ART 4940 Internship

ART 4950 Design Project: Topics

ART 4990 Special Studies

**Support Course 3**

ART 3400 Concepts in Art, Studio and Theory

or ART 3850 Gallery Practices

or ART 4850 Professional Practices

**Related Course Work**

ARTH 2050 History of Western Art I 3

ARTH 2060 History of Western Art II 3

ARTH 2080 History Of Modern Art 3

or ARTH 2550 History of Graphic Design

Select one Non-Western Art History course: 3

ARTH 2100

ARTH 2200 Ethnographic Art

ARTH 3250 Topics In Asian Art

ARTH 3350 Ancient Art Of The Americas

ARTH 3300 African Art

Art History Elective 3000-4000 level (not ARTH 1500) 3

ARTH 3400 Contemporary Art 3

or ARTH 3500 History Of Photography

or ARTH 4500 Contemporary Art And Theory

<sup>1</sup> The AAS courses provide a consistent framework of categories within each of the following areas: 2D, 3D, NM. Within each of these area categories, specific course topics and content are offered on a rotational basis and appear in the catalog using a prefix and descriptive course subtitle. For example, in a given semester, ART 3100 would appear as ART 3100: Screen-printing.

<sup>2</sup> Students may not take the same course in both the CORE and Advanced Studies categories. ART 4910 or 4940 can be taken with department approval to use in Advanced Studies.

Note: All Foundation Art Studies courses, 2 Core Art Studies courses, and either ARTH 2050 or ARTH 2060 Art History Survey should be taken before the 3000/4000 level. BA Visual Art students select from the same pool of course offerings as the B.F.A. students, except for the capstone thesis project.

Students pursuing the B.A. degree may not elect the PS/NC option in studio art or art history courses or in related courses.

Art majors should meet every semester with their Advisor.

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

First Term		Hours
AR 1000	First Year Orientation	1
ART 1050	Foundations of 2D Design	3
ART 1080	Foundations of Drawing I	3
ARTH 2050	History of Western Art I	3
ENGL 1110	College Composition I	3
or ENGL 1010	or College Composition 1 Co-Requisite	

MATH 1180 Reasoning With Mathematics 3

**Hours 16**

**Second Term**

ART 1040 Foundations of Art Studio Technology 3

ART 1060 Foundations of 3D Design 3

ART 1070 Foundations of Digital Media 3

ENGL 1130 College Composition II: Academic 3

or ENGL 2950 Disciplines And Discourse

or ENGL 2960 or Technical Writing

or Professional and Business Writing

Core Natural Science 3

Natural Science Lab 1

**Hours 16**

**Third Term**

ART 1090 Foundations of Drawing II 3

Select one of the following 3D Core courses: 3

ART 2200 Introduction to Sculpture

ART 2210 Introduction to Ceramics

ARTH 2060 History of Western Art II 3

ENGL 2710-ENGL 2800 Arts/Humanities Core (English Lit) 3

Natural Sciences Core 3

**Hours 15**

**Fourth Term**

ART 2010 Graphic Design: Print 3

or ART 2030 or Introduction to Photography

Select one of the following 2D Core Electives: 3

ART 2100 Life Drawing

ART 2110 Introduction to Printmaking

ART 2300 Introduction to Painting

ARTH 2080 History Of Modern Art 3

or ARTH 2550 or History of Graphic Design

or ARTH 3500 or History Of Photography

Social Sciences Core 3

Arts/Humanities Core (History) 3

**Hours 15**

**Fifth Term**

Advanced Art Studies 6

Elementary Foreign Language I 4

Arts and Letters Social Science 3

ART History elective 2000-4000 level 3

**Hours 16**

**Sixth Term**

Advanced Art Studies 9

Select one of the following Non-Western Art/Non-US Diversity

courses: 3

ARTH 2100

ARTH 2200 Ethnographic Art

ARTH 3300 African Art

Elementary Foreign Language II 4

**Hours 16**

**Seventh Term**

ART 3400 Concepts in Art, Studio and Theory 3

or ART 3850 or Gallery Practices

or ART 4850 or Professional Practices

Intermediate Foreign Language I or approved culture course 3

US Diversity or Elective 3

ARTH 3400 Contemporary Art 3

or ARTH 3500 or History Of Photography

or ARTH 4500 or Contemporary Art And Theory

**Hours 12**

**Eighth Term**

Advanced Art Studies 3

Intermediate Foreign Language II or approved culture course 3

Core Social Science 3

Elective 5

**Hours 14**

**Total Hours 120**

**Honors in B.A. in Visual Art Degree**

Qualified juniors and seniors may apply to the Honors Program in studio art. The following are requirements for entrance into the Honors Program in studio art:

1. Admission
  - a. 3.5 minimum GPA in studio art
  - b. 3.3 minimum cumulative GPA
  - c. 6 hours must be completed in the area of concentration, plus 9 hours of Foundational Art Studies
  - d. Instructors' permission (areas of concentration: 2D Studies, 3D Studies, New Media Studies)
2. Requirements
 

A student must have completed a minimum of six hours of honors course work in studio art before beginning the thesis project. (Note: This does not include six hours of concentration needed for admission into the Honors Program.) The student must take the BA Thesis Project capstone as an honors course with additional requirements. The designation "honors" on the diploma will be given to students who receive a grade of A on the honors thesis project and maintain a minimum GPA of 3.5 in studio art.

  - PLO 1: Aesthetic abilities: Students will create artworks with an aesthetic order that expresses meaning and furthers cognitive growth.
  - PLO 2: Technique and the comprehension of a medium's potential: Students will use the appropriate tools and art/design materials to develop creative projects within and beyond their area of concentration.
  - PLO 3: Presentation/career preparedness: Students will plan, develop and create artistic projects in an exhibition, portfolio, and/or publication format.
  - PLO 4: Writing and communication skills: Students will discuss, interpret and summarize complex ideas effectively through written, oral, and visual rhetoric.



- PLO 5: Research skills: Students will use multiple global resources in the arts, humanities, and sciences for developing creative projects.

## B.F.A. in Studio Art

### Overview

Dan Hernandez, Head, Studio Art  
Deborah Orloff, Coordinator for undergraduate Advisors  
Barbara Miner, Barry Whittaker, Dan Hernandez, undergraduate Advisors.

The Bachelor of Fine Arts (BFA) degree provides an intensive educational experience for the student who is preparing for professional commitment to the field of studio art. In distinction from the B.A. degree, the BFA curriculum provides the student with a more in-depth experience in the major area of studio concentration and studio electives.

BFA students may choose from the following 4 areas of studio concentration:

- 2D Studies (drawing, printmaking, painting, mixed media),
- 3D Studies (sculpture, ceramics, installation, mixed media),
- Photography and Digital Media (photography, digital arts, time-based media, mixed media),
- Graphic and Interactive Design (graphic design, interactive design, coding, games, video/ time-based media, etc.).

Note: studio courses for the latter two concentrations use the NM prefix.

### Admissions

**BFA:** Students may opt into the BFA degree at any time by simply declaring the major and selecting a concentration.

**BFA with Departmental Honors (BFA Honors):** Students interested in pursuing the BFA Honors degree must apply and be accepted into the program.

Students interested in admission to the BFA Honors program must apply to the Chair of the BFA Honors Committee. The student should obtain the appropriate application materials from the Chair of the

Committee or from the departmental office. Before applying, the student must consult with their Faculty Advisor(s) about the application process, and subsequently the application form must be signed by the required number of faculty mentors (3). The student must submit a completed application form to the office at least 5 calendar days before the review.

Before applying to the BFA Honors program, a student must have completed or be in the process of completing 30 semester hours of undergraduate study, which must include:

Code	Title	Hours
<b>Foundational Art Studies in Studio Art</b>		
<i>Drawing</i>		
ART 1080	Foundations of Drawing I	3
ART 1090	Foundations of Drawing II	3
<i>Design</i>		
ART 1050	Foundations of 2D Design	3
ART 1060	Foundations of 3D Design	3

<i>Digital Media</i>		
ART 1070	Foundations of Digital Media	3
Select 15 hours of general education requirements and art history <sup>1</sup>		15
<b>Total Hours</b>		<b>30</b>

<sup>1</sup> ARTH 2050 or ARTH 2060 and not ARTH 1500.

At the time of application, the student must have maintained at least a 3.25 GPA in all studio art and art history courses. The department allows adjusted GPAs to be used in reaching the 3.25 benchmark in accordance with the UToledo policy of recalculated GPAs ([https://www.utoledo.edu/offices/registrar/student\\_records/gpa\\_recalculation.html](https://www.utoledo.edu/offices/registrar/student_records/gpa_recalculation.html)) as well as previously adjusted incoming transfer GPAs for coursework used in the major and related fields. If required courses are still in process at the time of application, acceptance is provisional until all courses are completed and the GPA standard is maintained. Applications are reviewed every Fall and Spring semester. If the application is denied, the student may reapply the following semester.

Students pursuing the BFA or BFA Honors degree may not elect the PS/NC option in studio art or art history courses or in related courses. Art majors pursuing the BFA Honors degree must meet every semester with their Advisors who are assigned by the BFA Honors committee.

### B.F.A. IN STUDIO ART DEGREE - With Departmental Honors

BFA students are encouraged to earn Departmental Honors. The following criteria must be met to earn the BFA Honors degree:

1. BFA Honors students must meet all requirements of the BFA program.
2. Residency: Minimum 4 semesters within the BFA Honors degree enrolled in studio art courses.
3. BFA Honors Reviews: Pass a minimum of 4 BFA Honors reviews:

- The initial application review
- Two semester progress reviews
- Final B.F.A Exhibition review

4. GPA: BFA Honors candidates must maintain a 3.25 minimum GPA average in all studio art and art history courses during residency as well as upon completion of the degree. The department allows adjusted GPAs to be used in reaching the 3.25 benchmark in accordance with the UToledo policy of recalculated GPAs.

5. Pass ART 4400 BFA Thesis (student must register for the Honors section)

#### Disqualification from the BFA Honors program:

One or more of the following criteria will disqualify candidates from the BFA Honors program:

1. Failure to maintain residency,
2. Failure to attend and pass BFA Honors progress reviews,



3. Failure to maintain a 3.25 GPA in all studio art and art history courses
4. Failure to pass ART 4400

If disqualified, the student may not reapply to the BFA Honors program, but may still complete the BFA degree (without honors).

1. The student will not be awarded the honors designation upon completion of their BFA degree.
2. Once disqualified, the student is no longer required to continue participating in BFA reviews.
3. The student may not reapply to the BFA Honors track.

## REQUIREMENTS

Students pursuing the B.F.A. degree may not elect the PS/NC option in studio art or art history courses or in related courses. Art majors pursuing the B.F.A. degree must meet every semester with their Advisors who are assigned by the B.F.A. committee.

The curriculum leading to the B.F.A. in studio art requires a minimum of 63 hours of courses in the major (66 hours maximum) plus 18 hours of related coursework for a total of at least 81 credits, which must include the following:

### 2D Studies Concentration

Code	Title	Hours
<b>Foundational Art Studies (Basic Skills Area)</b>		
ART 1040	Foundations of Art Studio Technology	3
ART 1050	Foundations of 2D Design	3
ART 1060	Foundations of 3D Design	3
ART 1070	Foundations of Digital Media	3
ART 1080	Foundations of Drawing I	3
ART 1090	Foundations of Drawing II	3
<b>Core Art Studies for the 2D Studies Concentration</b>		
2D Core Studies:		
ART 2110	Introduction to Printmaking	3
ART 2100	Life Drawing	3
ART 2300	Introduction to Painting	3
3D Core Studies:		
ART 2200	Introduction to Sculpture	3
or ART 2210	Introduction to Ceramics	
NM Core Studies:		
ART 2010	Graphic Design: Print	3
or ART 2030	Introduction to Photography	
<b>Advanced Art Studies in 2D Concentration</b>		
Select 18 hours: <sup>1</sup>		18
ART 3100	Printmaking: Topics	
ART 3110	2D: Topics	
ART 3120	Painting: Topics	
ART 4100	Advanced Printmaking: Topic	
ART 4110	Advanced 2D: Topics	
ART 4120	Advanced Painting: Topic	
ART 4300	Bio-Design Challenge <sup>2</sup>	
ART 4360	Installation Art <sup>2</sup>	

ART 4370	Wearable Conditions <sup>2</sup>	
ART 4380	Mixed Media: Topics <sup>2</sup>	
ART 4910	Independent Study <sup>1</sup>	
ART 4940	Internship <sup>1</sup>	
ART 4990	Special Studies <sup>1</sup>	
<b>Advanced Art Studies Outside Concentration <sup>2</sup></b>		<b>6</b>
Select 2 courses for 6 credits		
ART 3000	Photography: Topics	
ART 3010		
ART 3210	Ceramics:Topics	
ART 3200	Sculpture: Topics	
ART 3850	Gallery Practices	
ART 3900	Advanced Graphic Design:Topic	
ART 4000	Advanced Photography: Topics	
ART 4010	Game Design: Topic	
ART 4020	Time, Motion, Space: Topics	
ART 4200	Advanced Sculpture: Topic	
ART 4210	Advanced Ceramics: Topic	
ART 4300	Bio-Design Challenge <sup>2</sup>	
ART 4360	Installation Art <sup>2</sup>	
ART 4370	Wearable Conditions <sup>2</sup>	
ART 4380	Mixed Media: Topics <sup>2</sup>	
ART 4950	Design Project: Topics	
<b>Support Courses</b>		
ART 3400	Concepts in Art, Studio and Theory <sup>3</sup>	3
ART 4850	Professional Practices <sup>3</sup>	3
ART 4400	BFA Thesis <sup>4</sup>	3
<b>Related Course Work</b>		
ARTH 2050	History of Western Art I	3
ARTH 2060	History of Western Art II	3
ARTH 2080	History Of Modern Art	3
or ARTH 2550	History of Graphic Design	
ARTH 3400	Contemporary Art	3
or ARTH 3500	History Of Photography	
or ARTH 4500	Contemporary Art And Theory	
ARTH 2100		3
or ARTH 2200	Ethnographic Art	
or ARTH 3250	Topics In Asian Art	
or ARTH 3300	African Art	
or ARTH 3350	Ancient Art Of The Americas	
Art History Elective course <sup>5</sup>		3
<b>Total Hours</b>		<b>84</b>

<sup>1</sup> The Advanced Art Studies courses provide a consistent framework of categories within each concentration (2D, 3D, Photography and Digital Media and GID). Specific course topics and content are offered on a rotational basis and appear in the catalog using a prefix and descriptive course title. For example, in a given semester ART 3100 (TOPIC) would appear as ART 3100: Printmaking: Topics. Students may repeat TOPICS courses up to 18 credits so long as the TOPIC differs. Students may



use ART 4910, 4940 or ART 4990 as part of the Advanced Art Studies in 2D with departmental approval.

<sup>2</sup> The following may be used as either a concentration course or outside concentration course so long as a single course is only used once in either category: ART 4300, 4360, 4370, or 4380. Students may use a 2000-level studies course, ART4910, or ART 4940 as an Advanced Art Studies Outside the Concentration with departmental approval.

<sup>3</sup> This course is typically taken during the final year. It is taught as a Fall-only option, so student should plan their degree completion accordingly.

<sup>4</sup> A capstone course taken in the final year. Course is taught Spring only, so students should plan accordingly with their degree completion planning. ART 4400 is only required for students pursuing departmental honors. Non-Honors students may elect any studio course instead.

<sup>5</sup> Students may select an Art History elective taken from the 2000-4000 level. ARTH 1500 is not for major credit and is not an option for use in the related fields.

### 3D Studies Concentration

Code	Title	Hours
<b>Foundational Art Studies (Basic Skills Area)</b>		
ART 1040	Foundations of Art Studio Technology	3
ART 1050	Foundations of 2D Design	3
ART 1060	Foundations of 3D Design	3
ART 1070	Foundations of Digital Media	3
ART 1080	Foundations of Drawing I	3
ART 1090	Foundations of Drawing II	3
<b>Core Art Studies for the 3D Studies Concentration</b>		
2D Core Studies:		
Select two of the following: 6		
ART 2110	Introduction to Printmaking	
ART 2100	Life Drawing	
ART 2300	Introduction to Painting	
3D Core Studies:		
ART 2200	Introduction to Sculpture	3
ART 2210	Introduction to Ceramics	3
NM Core Studies:		
ART 2010	Graphic Design: Print	3
or ART 2030	Introduction to Photography	
<b>Advanced Art Studies</b> <sup>1</sup>		
Select 18 hours: <sup>2</sup>		18
ART 3200	Sculpture: Topics	
ART 3210	Ceramics:Topics	
ART 4200	Advanced Sculpture: Topic	
ART 4210	Advanced Ceramics: Topic	
ART 4300	Bio-Design Challenge <sup>2</sup>	
ART 4360	Installation Art <sup>2</sup>	
ART 4370	Wearable Conditions <sup>2</sup>	
ART 4380	Mixed Media: Topics <sup>2</sup>	
<b>Advanced Art Studies Outside the Concentration</b> <sup>2</sup>		6
Select 2 courses for 6 credits		
ART 3000	Photography: Topics	

ART 3010	
ART 3100	Printmaking: Topics
ART 3110	2D: Topics
ART 3120	Painting: Topics
ART 3850	Gallery Practices
ART 3910	Outsider Art and Community Practice
ART 3950	Contemporary Design Methods and Practices
ART 3990	
ART 4000	Advanced Photography: Topics
ART 4010	Game Design: Topic
ART 4020	Time, Motion, Space: Topics
ART 4100	Advanced Printmaking: Topic
ART 4110	Advanced 2D: Topics
ART 4120	Advanced Painting: Topic
ART 4300	Bio-Design Challenge <sup>2</sup>
ART 4360	Installation Art <sup>2</sup>
ART 4370	Wearable Conditions <sup>2</sup>
ART 4380	Mixed Media: Topics <sup>2</sup>
ART 4950	Design Project: Topics

#### Support Courses

ART 3400	Concepts in Art, Studio and Theory <sup>3</sup>	3
ART 4850	Professional Practices <sup>3</sup>	3
ART 4400	BFA Thesis <sup>4</sup>	3

#### Related Course Work

ARTH 2050	History of Western Art I	3
ARTH 2060	History of Western Art II	3
ARTH 2080	History Of Modern Art	3
or ARTH 2550	History of Graphic Design	
ARTH 3400	Contemporary Art	3
or ARTH 3500	History Of Photography	
or ARTH 4500	Contemporary Art And Theory	
ARTH 2100		3
or ARTH 2200	Ethnographic Art	
or ARTH 3250	Topics In Asian Art	
or ARTH 3300	African Art	
or ARTH 3350	Ancient Art Of The Americas	
Related Elective course <sup>5</sup>		3

#### Total Hours

84

<sup>1</sup> The Advanced Art Studies courses provide a consistent framework of categories within each concentration (2D, 3D, Photography and Digital Media and GID). Specific course topics and content are offered on a rotational basis and appear in the catalog using a prefix and descriptive course title. For example, in a given semester ART 3100 (TOPIC) would appear as ART 3100: Printmaking: Topics. Students may repeat TOPICS courses up to 18 credits so long as the TOPIC differs. Students may use ART 4910, 4940 or ART 4990 as part of the Advanced Art Studies in 2D with departmental approval

<sup>2</sup> Students should select 6 credits of 3000-4000 Art Studies from the course list. The following may be used as either a concentration course or outside concentration course so long as a single course is only used

once in either category: ART 4300, 4360, 4370, or 4380. Students may use a 2000-level studies course, ART4910, or ART 4940 as an Advanced Art Studies Outside the Concentration with departmental approval.

<sup>3</sup> This course is typically taken during the final year. It is taught as a Fall-only option, so student should plan their degree completion accordingly.

<sup>4</sup> A capstone course taken in the final year. Course is taught Spring only, so students should plan accordingly with their degree completion planning. ART 4400 is only required for students pursuing departmental honors. Non-Honors students may elect any studio course instead.

<sup>5</sup> Arth 1500 is not permitted for use in the Related Fields.

### Photography and Digital Media Concentration

Code	Title	Hours
<b>Foundational Art Studies (Basic Skills Area)</b>		
ART 1040	Foundations of Art Studio Technology	3
ART 1050	Foundations of 2D Design	3
ART 1060	Foundations of 3D Design	3
ART 1070	Foundations of Digital Media	3
ART 1080	Foundations of Drawing I	3
ART 1090	Foundations of Drawing II	3
<b>Core Art Studies for Photography and Digital Media Concentration</b>		
<i>2D Core Studies:</i>		
Select one of the following:		3
ART 2110	Introduction to Printmaking	
ART 2100	Life Drawing	
ART 2300	Introduction to Painting	
<i>3D Core Studies:</i>		
ART 2200	Introduction to Sculpture	3
or ART 2210	Introduction to Ceramics	
<i>NM Core Studies:</i>		
ART 2010	Graphic Design: Print	3
ART 2020	Graphic Design: Web	3
ART 2030	Introduction to Photography	3
<b>Advanced Art Studies</b>		
Select 18 hours: <sup>1</sup>		18
ART 3000	Photography: Topics	
ART 3010		
ART 3900	Advanced Graphic Design:Topic	
ART 4000	Advanced Photography: Topics	
ART 4010	Game Design: Topic	
ART 4020	Time, Motion, Space: Topics	
ART 4300	Bio-Design Challenge <sup>2</sup>	
ART 4360	Installation Art <sup>2</sup>	
ART 4370	Wearable Conditions <sup>2</sup>	
ART 4380	Mixed Media: Topics <sup>2</sup>	
ART 4910	Independent Study <sup>2</sup>	
ART 4940	Internship <sup>2</sup>	
ART 4950	Design Project: Topics	
ART 4990	Special Studies <sup>2</sup>	
<b>Advanced Art Studies Outside the Concentration</b> <sup>3</sup>		<b>6</b>

Select 2 courses for 6 credits

ART 3100	Printmaking: Topics
ART 3110	2D: Topics
ART 3120	Painting: Topics
ART 3200	Sculpture: Topics
ART 3210	Ceramics:Topics
ART 3850	Gallery Practices
ART 4100	Advanced Printmaking: Topic
ART 3950	Contemporary Design Methods and Practices
ART 4110	Advanced 2D: Topics
ART 4200	Advanced Sculpture: Topic
ART 4210	Advanced Ceramics: Topic
ART 4300	Bio-Design Challenge <sup>2</sup>
ART 4360	Installation Art <sup>2</sup>
ART 4370	Wearable Conditions <sup>2</sup>
ART 4380	Mixed Media: Topics <sup>2</sup>
ART 4910	Independent Study <sup>2</sup>
ART 4940	Internship <sup>2</sup>
ART 4990	Special Studies <sup>2</sup>

#### Support Courses

ART 3400	Concepts in Art, Studio and Theory <sup>3</sup>	3
ART 4850	Professional Practices <sup>3</sup>	3
ART 4400	BFA Thesis <sup>4</sup>	3

#### Related Course Work

ARTH 2050	History of Western Art I	3
ARTH 2060	History of Western Art II	3
ARTH 2100		3
or ARTH 2200	Ethnographic Art	
or ARTH 3250	Topics In Asian Art	
or ARTH 3300	African Art	
or ARTH 3350	Ancient Art Of The Americas	
ARTH 2080	History Of Modern Art	3
or ARTH 2550	History of Graphic Design	
ARTH 3400	Contemporary Art	3
or ARTH 3500	History Of Photography	
or ARTH 4500	Contemporary Art And Theory	
Related elective course <sup>5</sup>		3

**Total Hours 84**

<sup>1</sup> The Advanced Art Studies courses provide a consistent framework of categories within each concentration (2D, 3D, Photography and Digital Media and GID). Specific course topics and content are offered on a rotational basis and appear in the catalog using a prefix and descriptive course title. For example, in a given semester ART 3100 (TOPIC) would appear as ART 3100: Printmaking: Topics. Students may repeat TOPICS courses up to 18 credits so long as the TOPIC differs.

<sup>2</sup> The following may be used as either a concentration course or outside concentration course so long as a single course is only used once in either category: ART 4300, 4360, 4370, or 4380. Students may use a 2000-level studies course, ART4910, or ART 4940 as an Advanced Art Studies Outside the Concentration with departmental approval.

<sup>3</sup> This course is taught as a Fall-only option, so student should plan their degree completion accordingly.

<sup>4</sup> A capstone course taken in the final year. Course is taught Spring only, so students should plan accordingly with their degree completion planning. ART 4400 is only required for students pursuing departmental honors. Non-Honors students may elect any studio course instead.

<sup>5</sup> Students may select an Art History elective taken from the 2000-4000 level. ARTH 1500 is not for major credit and is not an option for use in the related fields.

## Graphic and Interactive design (GID) Concentration

Code	Title	Hours
<b>Foundational Art Studies (Basic Skills Area)</b>		
ART 1040	Foundations of Art Studio Technology	3
ART 1050	Foundations of 2D Design	3
ART 1060	Foundations of 3D Design	3
ART 1070	Foundations of Digital Media	3
ART 1080	Foundations of Drawing I	3
ART 1090	Foundations of Drawing II	3
<b>Core Art Studies for Graphic and Interactive design</b>		
ART 2010	Graphic Design: Print	3
ART 2020	Graphic Design: Web	3
ART 2030	Introduction to Photography	3
Select 4 courses for 12 credits in technical elective courses: <sup>2</sup>		12
BMGT 2050	Small Business Management	
BUAD 2040	Financial Accounting Information or ACTG 104 Principles Of Financial Accounting	
EFSB 3480	Entrepreneurial Finance	
EFSB 3500	Introduction To Entrepreneurship for Non-Business Students	
EFSB 4590	Entrepreneurship and Small Business Management	
EFSB 4010	Growing Family And Entrepreneurial Businesses	
EFSB 4690	Strategic Management of Innovation	
EFSB 4980	Special Topics In Entrepreneurship And Family Business	
ENGL 3080	The Art And Process Of The Book	
FILM 2320	Digital Cinema Production I - WAC	
MUS 2270	Recording Techniques	
MUS 2260	Electronic Music	
COMM 2150	Digital Design for Media Communication	
CMPT 2030	C Family Programming	
CMPT 2410	Adobe InDesign Desktop Publishing	
CMPT 2620	Web Site Maintenance	
Advanced Art Studio at the 3000-4000 level with Advisor Approval		
<b>Advanced Art Studies</b>		
Select 18 credits from the following: <sup>1</sup>		18
ART 3000	Photography: Topics (any topics)	
ART 3010	(any topics)	
ART 3900	Advanced Graphic Design:Topic	
ART 4000	Advanced Photography: Topics (any topics)	

ART 4010	Game Design: Topic (any topics)	
ART 4020	Time, Motion, Space: Topics (any topics)	
ART 4300	Bio-Design Challenge <sup>2</sup>	
ART 4360	Installation Art <sup>2</sup>	
ART 4370	Wearable Conditions <sup>2</sup>	
ART 4380	Mixed Media: Topics <sup>2</sup>	
ART 4910	Independent Study <sup>2</sup>	
ART 4940	Internship <sup>2</sup>	
ART 4950	Design Project: Topics <sup>2</sup>	
ART 4990	Special Studies <sup>2</sup>	

<b>Support Courses</b>		
ART 4850	Professional Practices <sup>3</sup>	3
ART 3950	Contemporary Design Methods and Practices or ART 3400 Concepts in Art, Studio and Theory	3
ART 4400	BFA Thesis	3
<b>Related Course Work</b>		
ARTH 2050	History of Western Art I	3
ARTH 2060	History of Western Art II	3
ARTH 2080	History Of Modern Art or ARTH 2550 History of Graphic Design	3
ARTH 3400	Contemporary Art or ARTH 3500 History Of Photography or ARTH 4500 Contemporary Art And Theory	3
ARTH 3950	AMP	3
ARTH 2100	or ARTH 2200 Ethnographic Art or ARTH 3250 Topics In Asian Art or ARTH 3300 African Art or ARTH 3350 Ancient Art Of The Americas	3

**Total Hours** **84**

<sup>1</sup> The Advanced Art Studies courses provide a consistent framework of categories within each concentration (2D, 3D, Photography and Digital Media and GID). Specific course topics and content are offered on a rotational basis and appear in the catalog using a prefix and descriptive course title. For example, in a given semester ART 3100 (TOPIC) would appear as ART 3100: Printmaking: Topics. Students may repeat TOPICS courses up to 18 credits so long as the TOPIC differs.

<sup>2</sup> The following may be used as either a concentration course or technical elective course so long as a single course is only used once in either category: ART 4300, 4360, 4370, or 4380. Students may use a 2000-level studies course, ART4910, or ART 4940 with departmental approval.

<sup>3</sup> This course is taught as a Fall-only option, so student should plan their degree completion accordingly.

<sup>4</sup> A capstone course taken in the final year. Course is taught Spring only, so students should plan accordingly with their degree completion planning. ART 4400 is only required for students pursuing departmental honors. Non-Honors students may elect any studio course instead.

<sup>1</sup> Students will work with their advisor to choose 6 hours of technical courses from departments across the College of Communication and the Arts as well as CMPT courses.

<sup>2</sup> The AAS courses provide a consistent framework of categories within each area of concentration:

- 2D Studies,
- 3D Studies,
- Photography and Digital Media,
- Graphic and Interactive Design.

Within each of these areas, specific course topics and content are offered on a rotational basis and appear in the catalog using a prefix and descriptive course subtitle. For example, in a given semester ART 3100 (TOPIC) would appear as ART 3100: Printmaking: Topics. Students can retake a given course category to fulfill their AAS credit requirements as long as it is offered with a different topic title.

<sup>3</sup> Students are permitted to take 2000 level courses in circumstances where they need to fulfill core prerequisites in order to take selected AAS level courses. See the catalog listing of offerings and prerequisites.

<sup>4</sup> Usually taken in the student's junior or senior year.

<sup>5</sup> An exhibition-based capstone course usually taken during the student's final year.

<sup>6</sup> May be selected from courses offered in art history or from the degree audit.

## Plan of Study

Below are sample plans of study. Consult your degree audit for your program requirements.

- 2D Studies Concentration (p. 37)
- 3D Studies Concentration (p. 38)
- Photography and Digital Media Concentration (p. 38)
- Graphic and Interactive Design Concentration (p. 39)

## 2D Studies Concentration

First Term	Hours
AR 1000 First Year Orientation	1
ART 1080 Foundations of Drawing I	3
ART 1040 Foundations of Art Studio Technology	3
ARTH 2050 History of Western Art I	3
ENGL 1110 College Composition I	3
MATH 1180 Reasoning With Mathematics	3
<b>Hours</b>	<b>16</b>
Second Term	Hours
ART 1050 Foundations of 2D Design	3
ART 1060 Foundations of 3D Design	3
ART 1090 Foundations of Drawing II	3
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core	3

Natural Sciences Core (Lab)	1
<b>Hours</b>	<b>16</b>
Third Term	Hours
ART 1070 Foundations of Digital Media	3
ART 2100 Life Drawing	3
ART 2110 Introduction to Printmaking	3
ARTH 2060 History of Western Art II	3
ENGL 2710-ENGL 2800 Arts/Humanities Core (English Lit)	3
<b>Hours</b>	<b>15</b>
Fourth Term	Hours
ART 2300 Introduction to Painting	3
ART 2010 Graphic Design: Print or ART 2030 or Introduction to Photography	3
ART 2200 Introduction to Sculpture or ART 2210 or Introduction to Ceramics	3
ARTH 2080 History Of Modern Art (or ARTH Elective)	3
Social Sciences Core	3
<b>Hours</b>	<b>15</b>
Fifth Term	Hours
ART 3xxx+ Advanced Art Studies	3
ART 3xxx+ Advanced Art Studies	3
Art History elective 2000-4000 level	3
Arts/Humanities Core (History)	3
Communication Required Elective	3
<b>Hours</b>	<b>15</b>
Sixth Term	Hours
ART 3xxx+ Advanced Art Studies	3
ART 3xxx+ Advanced Art Studies	3
ART 3850 Gallery Practices ((WAC) or ART 3xxx+ Advanced Art Studies)	3
Select one of the following Non-Western Art/Non-US Diversity courses:	3
ARTH 2100	
ARTH 2200 Ethnographic Art	
ARTH 3300 African Art	
Social Sciences Core	3
<b>Hours</b>	<b>15</b>
Seventh Term	Hours
ART 3xxx+ Advanced Art Studies	3
ART 4850 Professional Practices ((WAC) or ART 3xxx + Advanced Art Studies)	3
ART 3400 Concepts in Art, Studio and Theory	3
ART History elective 2000-4000 level	3
Elective	1
<b>Hours</b>	<b>13</b>
Eighth Term	Hours
ART 3xxx+ Advanced Art Studies	3
ART 3xxx+ Advanced Art Studies	3
ART 4400 BFA Thesis	3
Diversity of US / AR Social Science	3



Art History Elective 2000-4000 level	3
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>120</b>

## 3D Studies Concentration

First Term	Hours
AR 1000 First Year Orientation	1
ART 1050 Foundations of 2D Design	3
ART 1080 Foundations of Drawing I	3
ARTH 2050 History of Western Art I	3
ENGL 1110 College Composition I	3
MATH 1180 Reasoning With Mathematics	3
<b>Hours</b>	<b>16</b>

Second Term	Hours
ART 1040 Foundations of Art Studio Technology	3
ART 1060 Foundations of 3D Design	3
ART 1070 Foundations of Digital Media	3
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core	3
Natural Sciences Core (Lab)	1
<b>Hours</b>	<b>16</b>

Third Term	Hours
ART 1090 Foundations of Drawing II	3
ART 2200 Introduction to Sculpture	3
ART 2210 Introduction to Ceramics	3
ARTH 2060 History of Western Art II	3
ENGL 2710-ENGL 2800 Arts/Humanities Core (English Lit)	3
<b>Hours</b>	<b>15</b>

Fourth Term	Hours
Select one of the following 2D Core courses	3
ART 2100 Life Drawing	
ART 2110 Introduction to Printmaking	
ART 2300 Introduction to Painting	
Select one of the following NM Core courses:	3
ART 2010 Graphic Design: Print	
ART 2030 Introduction to Photography	
ARTH 2080 History Of Modern Art (or ARTH elective) or ARTH 2550 or History of Graphic Design	3
Natural Sciences Core	3
Social Sciences Core	3
<b>Hours</b>	<b>15</b>

Fifth Term	Hours
ART 3xxx+ Advanced Art Studies	3
ART 3xxx+ Advanced Art Studies	3
Select one of the following 2D Core courses:	3
ART 2100 Life Drawing	
ART 2110 Introduction to Printmaking	
ART 2300 Introduction to Painting	

ARTH 3500 History Of Photography or ARTH 3400 or Contemporary Art or ARTH 4500 or Contemporary Art And Theory	3
Arts/Humanities Core (History)	3
<b>Hours</b>	<b>15</b>

Sixth Term	Hours
ART 3xxx+ Advanced Art Studies	3
ART 3xxx+ Advanced Art Studies	3
ART 3850 Gallery Practices ((WAC) or ART 3xxx+ Advanced Art Studies)	3
Social Sciences Core	3
ARTH 2100 or ARTH 2200 or Ethnographic Art or ARTH 3250 or Topics In Asian Art or ARTH 3300 or African Art or ARTH 3350 or Ancient Art Of The Americas	3
<b>Hours</b>	<b>15</b>

Seventh Term	Hours
ART 3xxx+ Advanced Art Studies	3
ART 3400 Concepts in Art, Studio and Theory	3
ART 4850 Professional Practices	3
Select one of the following Contemporary Art History courses:	3
ARTH 3400 Contemporary Art	
ARTH 3500 History Of Photography	
ARTH 4500 Contemporary Art And Theory	
<b>Hours</b>	<b>12</b>

Eighth Term	Hours
ART 3xxx+ Advanced Art Studies	3
ART 3xxx+ Advanced Art Studies	3
ART 4400 BFA Thesis	3
Diversity of US / AR Social Science	3
Elective	4
<b>Hours</b>	<b>16</b>
<b>Total Hours</b>	<b>120</b>

## Photography and Digital Media Concentration

First Term	Hours
AR 1000 First Year Orientation	1
ART 1050 Foundations of 2D Design	3
ART 1080 Foundations of Drawing I	3
ARTH 2050 History of Western Art I	3
ENGL 1110 College Composition I	3
MATH 1180 Reasoning With Mathematics	3
<b>Hours</b>	<b>16</b>

Second Term	Hours
ART 1040 Foundations of Art Studio Technology	3
ART 1070 Foundations of Digital Media	3
ART 1090 Foundations of Drawing II	3

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
ART 1060	Foundations of 3D Design	3
ART 2030	Introduction to Photography	3
Select one of the following 2D-Core courses:		3
ART 2100	Life Drawing	
ART 2110	Introduction to Printmaking	
ART 2300	Introduction to Painting	
ARTH 2060	History of Western Art II	3
ENGL 2710-ENGL 2800	Arts/Humanities Core (English Lit)	3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
ART 2010	Graphic Design: Print	3
ART 3xxx+	Advanced Art Studies	3
ARTH 2080	History Of Modern Art (or ARTH elective) or ARTH 2550 or History of Graphic Design	3
ART 2200	Introduction to Sculpture or ART 2210 or Introduction to Ceramics	3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
ART 2020	Graphic Design: Web	3
ART 3xxx+	Advanced Art Studies	3
ARTH 3500	History Of Photography (or ARTH elective)	3
Arts/Humanities Core (History)		3
Communication Required Elective		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
ART 3xxx+	Advanced Art Studies	3
ART 3xxx+	Advanced Art Studies	3
ART 3850	Gallery Practices ((WAC) or ART 3xxx+ Advanced Art Studies)	3
Select one of the following Non-Western Art/Non-US Diversity courses:		3
ARTH 2100		
ARTH 2200	Ethnographic Art	
ARTH 3300	African Art	
Social Sciences Core		3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
ART 3xxx+	Advanced Art Studies	3
ART 4850	Professional Practices	3
ART 3400	Concepts in Art, Studio and Theory	3
Select one of the following Contemporary Art History courses:		3
ARTH 3400	Contemporary Art	
ARTH 4500	Contemporary Art And Theory	

ARTH 3500	History Of Photography	
Core Natural Science		3
<b>Hours</b>		<b>15</b>
<b>Eighth Term</b>		
ART 3xxx+	Advanced Art Studies	3
ART 3xxx+	Advanced Art Studies	3
ART 4400	BFA Thesis	3
Diversity of US / AR Social Science		3
Elective		1
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>120</b>

## Graphic and Interactive Design Concentration

<b>First Term</b>		<b>Hours</b>
AR 1000	First Year Orientation	1
ART 1050	Foundations of 2D Design	3
ART 1070	Foundations of Digital Media	3
ARTH 2050	History of Western Art I	3
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>16</b>
<b>Second Term</b>		
ART 1040	Foundations of Art Studio Technology	3
ART 1080	Foundations of Drawing I	3
ART 2010	Graphic Design: Print	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
ART 1060	Foundations of 3D Design	3
ART 1090	Foundations of Drawing II	3
ART 2020	Graphic Design: Web	3
ARTH 2060	History of Western Art II	3
ENGL 2710-ENGL 2800	Arts/Humanities Core (English Lit)	3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
ART 2030	Introduction to Photography	3
Technical Guided Elective		3
ARTH 2080	History Of Modern Art or ARTH 2550 or History of Graphic Design	3
Natural Sciences Core		3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
ART 3950	Contemporary Design Methods and Practices	3



ART 3xxx+	Advanced Art Studies	3
Social Sciences Core		3
ARTH 2100		3
or ARTH 2200	or Ethnographic Art	
or ARTH 3250	or Topics In Asian Art	
or ARTH 3300	or African Art	
or ARTH 3350	or Ancient Art Of The Americas	
Arts/Humanities Core (History)		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
ART 3xxx+	Advanced Art Studies	6
Technical Guided Elective		3
ARTH 3950	AMP	3
US Diversity		3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
ART 3xxx+	Advanced Art Studies	3
Technical Guided Electives		6
ARTH 3400	Contemporary Art	3
or ARTH 3500	or History Of Photography	
or ARTH 4500	or Contemporary Art And Theory	
<b>Hours</b>		<b>12</b>
<b>Eighth Term</b>		
ART 4850	Professional Practices	3
ART 4400	BFA Thesis	3
ART 3xxx+	Advanced Art Studies	6
Elective		1
AR Social Science		3
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>120</b>

## Learning Outcomes

- PLO 1: Aesthetic abilities: Students will create artworks with an aesthetic order that expresses their unique vision.
- PLO 2: Technique and the comprehension of a medium's potential: Students will use the appropriate tools and art/design materials to develop creative projects within and beyond their area of concentration.
- PLO 3: Presentation/career preparedness: Students will plan, develop and create artistic projects in an exhibition, portfolio, and/or publication format.
- PLO 4: Writing and communication skills: Students will discuss, interpret and summarize complex ideas effectively through written, oral, and visual rhetoric.
- PLO 5: Research skills: Students will use multiple global resources to gather information about areas of interest specific to their discipline.

## Bachelor in Art Education

Jason Cox, Ph.D., Head, Art Education & graduate studies in art education, undergraduate and graduate advisor.

For details on the baccalaureate program in art education, see the Judith Herb College of Education (p. 564) section of this catalog.

## Graphic Design Certificate

Code	Title	Hours
ART 1070	Foundations of Digital Media	3
ART 2010	Graphic Design: Print	3
ART 2020	Graphic Design: Web	3
<b>Total Hours</b>		<b>9</b>

- PLO 1: Aesthetic abilities: Students will create artworks with an aesthetic order that expresses meaning and furthers cognitive growth.
- PLO 2: Technique and the comprehension of Graphic Design potential: Students will use the appropriate tools and art/design materials to develop creative projects.
- PLO 3: Presentation/career preparedness: Students will plan, develop, and create artistic projects in a portfolio, and/or publication format.
- PLO 4: Writing and communication skills: Students will discuss, interpret, and summarize complex ideas effectively through written, oral, and visual rhetoric.
- PLO 5: Research skills: Students will use multiple resources in the arts, humanities, and sciences for developing creative projects.

## Minor in Art History

Students may minor in art history through the declaration of the minor with the College of Arts and Letters and the completion of a minimum of 21 hours of art history courses, which must include the following:

Code	Title	Hours
<b>Core Courses</b>		
ARTH 2050	History of Western Art I <sup>1</sup>	3
ARTH 2060	History of Western Art II	3
Select at least one of the following courses in non-Western art:		3
ARTH 2100		
ARTH 2200	Ethnographic Art	
ARTH 3250	Topics In Asian Art	
ARTH 3300	African Art	
ARTH 3350	Ancient Art Of The Americas	
Select remaining hours from any courses offered by the art history program <sup>2</sup>		12
<b>Total Hours</b>		<b>21</b>

<sup>1</sup> Survey history of Western art courses may be taken in any order.

<sup>2</sup> The remaining hours for the minor may be selected from any courses offered by the art history program. Minors may elect to pursue up to three hours in Independent Study (ARTH 4990). Independent Study requires the permission of an art history faculty member who will direct the Independent Study project.



## Minor in Community Arts Education

Code	Title	Hours
<b>Art (3 credits)</b>		
ART 3910	Outsider Art and Community Practice	3
<b>Art Education (9 credits)</b>		
AED 3300	Crafts In Art	3
AED 4300	Media And Methods In Therapeutic Art	3
AED 4560	Introduction To Therapeutic Art	3
<b>Disability Studies (6 credits)</b>		
Disability Studies majors must select courses that are not being used to fulfill the major.		
DST 2020	Introduction to Disability Studies ((for non DST-majors only) )	
DST 3030	Disability Culture	
DST 4200	Crip Arts, Crip Culture	
Or other DST course chosen in consultation with advisor.		
<b>Total Hours</b>		<b>18</b>

- PLO 1. Students will explore the connections between "Outsider" art, disability culture, and educational best practices.
- PLO 2. Students will design effective methods for creating works of art and plans of study in a range of informal learning environments across multiple media.
- PLO 3. Students will experience a hands-on approach to working in the arts with diverse communities.

## Minor in Graphic Design

Code	Title	Hours
<b>The courses listed below are required for the minor in Graphic Design</b>		
ART 1070	Foundations of Digital Media	9
ART 2010	Graphic Design: Print	
ART 2020	Graphic Design: Web	
<b>Students may select any additional 9 credits from the electives listed below</b>		
ART 3010		
ART 3900	Advanced Graphic Design:Topic	
ART 4010	Game Design: Topic	
ART 4020	Time, Motion, Space: Topics	
ART 4300	Bio-Design Challenge	
ART 4990	Special Studies	
ART 4940	Internship	
ART 4950	Design Project: Topics	
ARTH 2550	History of Graphic Design	
ARTH 3600	History Of New Media	

- Aesthetic abilities: Students will create artworks with an aesthetic order that expresses meaning and furthers cognitive growth.
- Technique and the comprehension of a medium's potential: Students will use the appropriate tools and art/design materials to develop creative projects within and beyond their area of concentration.

- Presentation/career preparedness: Students will plan, develop and create artistic projects in an exhibition, portfolio, and/or publication format.
- Writing and communication skills: Students will discuss, interpret and summarize complex ideas effectively through written, oral, and visual rhetoric.
- Research skills: Students will use multiple global resources in the arts, humanities, and sciences for developing creative projects.

## Minor in Studio Art

The minor in studio art provides a general introduction to the use of tools and materials and an understanding of traditional and experimental media for the production of fine art. The minor in studio art is further designed to enrich the student's life by increasing her/his awareness of the world by developing skills of visual perception and communication.

Students electing to minor in studio art must complete 21 hours of course work, including nine hours of Foundational Art Studies (see below), which provide the basic technical and theoretical skills essential for a fundamental understanding of the discipline as well as a rigorous preparation for the advanced/upper division courses.

Code	Title	Hours
<b>Foundational Art Studies</b>		
Select 3 of 5 following course:		9
ART 1040	Foundations of Art Studio Technology	
ART 1050	Foundations of 2D Design	
ART 1060	Foundations of 3D Design	
ART 1070	Foundations of Digital Media	
ART 1080	Foundations of Drawing I	
Studio Electives: Choose any 2 studio classes from: 2D studies (drawing, printmaking, painting) 3D studies (sculpture, ceramics) New media studies (photography, digital arts)		6
Art History: Choose any art history course		3
<b>Total Hours</b>		<b>18</b>

Students must maintain a minimum GPA of 2.0. for all course work in the minor (in keeping with College of Arts and Letters standards). Candidates for the minor in studio art should have their course work verified and approved by an Advisor in studio art or the Chair of the department prior to making formal application for graduation.

- PLO 1: The minor in studio art provides a general introduction to the use of tools and materials and an understanding of traditional and experimental media for the production of fine art. The minor in studio art is further designed to enrich the student's life by increasing her/his awareness of the world by developing skills of visual perception and communication. Coursework provides the basic technical and theoretical skills essential for a fundamental understanding of the discipline, as well as a rigorous preparation for advanced/upper division art courses. 1. Aesthetic abilities: Students demonstrate the ability to create artworks with an aesthetic order that expresses meaning and furthers cognitive growth.
- PLO 2. Technique and the comprehension of a medium's potential: Students demonstrate skill and craft when using tools and art/design materials.

- PLO 3. Presentation/career preparedness: Students conceptualize, plan, and prepare effective artistic projects in an exhibition, portfolio, and/or publication format.
- PLO 4. Writing and communication skills: Students convey, interpret and summarize complex ideas effectively through written, oral, and visual rhetoric.
- PLO 5. Research skills: Students demonstrate effective use of multiple global resources in the arts, humanities, and sciences for developing creative projects.

## Department of Communication and Media

W. Benjamin Myers, Chair  
Lisa Bollman, Advisor

The Department of Communication has offices, studio facilities, classrooms, and computer labs in Rocket Hall. Communication offers courses of study leading to two undergraduate degrees: the Bachelor of Arts in Communication Studies and the Bachelor of Arts in Media Communication. Students opting for a degree in Communication Studies will choose a focus of study within one of three concentrations: Digital Communication, Interpersonal Communication or Organizational and Strategic Communication. Students selecting study in Media Communication will focus on Multimedia Journalism and Production. The department has state-of-the-art equipment and facilities in Rocket Hall, as well as Savage Arena, and produces event coverage for the university.

### Degrees Offered

- B.A. in Communication (p. 46)
- General Communication Minor (p. 52)
- Media Production Communication Certificate (p. 53)
- Organizational Communication Certificate (p. 53)
- Public Relations Communication Certificate (p. 53)
- Social Media Communication Certificate (p. 53)

#### COMM 1010 Comm Principles And Practices

[3 credit hours]

An introductory course that provides instruction and practice in human communication including interpersonal communication, group discussion, public speaking and mass communication.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities

#### COMM 2000 Media Communication And Society

[3 credit hours]

Overview of the media of mass communication, which considers social, economic and intellectual impact on American culture and democracy. Exploration of various mass media and their methods of shaping public perceptions.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities

#### COMM 2120 Reporting

[3 credit hours]

Introduction to writing for publication in the student newspaper, developing skills in interviewing, listening, using primary sources, thinking critically, and mastering electronic data-collection methods.

**Prerequisites:** COMM 2130 with a minimum grade of D-

**Term Offered:** Spring, Fall

#### COMM 2130 Media Writing 1

[3 credit hours]

Through various assigned readings, discussions, reporting and writing, students will become fully immersed in the media writing process. Students will develop story ideas, interview sources and write publication-ready news articles. Emphasis will be placed on journalistic ethics, credibility, accuracy and news judgment.

**Term Offered:** Spring, Summer, Fall

#### COMM 2150 Digital Design for Media Communication

[3 credit hours]

This introductory course covers how the basics of image capturing/manipulation and design principles are commonly used in communication-related industries. Students will be introduced to industry-standard software and open-source applications used in strategic communication to create effective media messages. This course focuses specifically on how students can legally and ethically apply digital design in journalistic, persuasive, organizational and similar communication avenues (this course is not suitable for students primarily interested in learning graphic design).

**Term Offered:** Spring, Fall

#### COMM 2160 Single Camera Production

[3 credit hours]

This is a laboratory/lecture course designed to introduce the student to the terminology and single camera production procedures used in field television production and serve as a foundation for story-telling through this medium.

**Term Offered:** Spring, Summer, Fall

#### COMM 2210 Audio Production I

[3 credit hours]

The class is designed to introduce students to studio recording and editing sound. Students will produce commercials, public service announcements, and demos for announcing jobs. Audio Production I is also designed to be a pre-requisite class for Audio Production II.

**Term Offered:** Spring, Fall

#### COMM 2220 Television Studio Production

[3 credit hours]

Students will work together to produce various types of live studio productions and will be introduced to the process of remote video acquisition and editing for use in living productions.

**Prerequisites:** COMM 2160 with a minimum grade of D-

**Term Offered:** Spring, Fall

#### COMM 2300 Photojournalism

[3 credit hours]

An applied study of the conceptual, ethical, philosophical, historical and commercial aspects of photojournalism.

**Term Offered:** Spring, Fall

**COMM 2500 Social Media I: Introduction to Social Media**

[3 credit hours]

This introductory course focuses on the development and use of social media in cultural, professional, and personal contexts. Students will explore niche and mainstream platforms across the world to become familiar with the landscape and global influence of social media. The practical, legal, and ethical role of social media in professions such as marketing, advertising, and public relations will also be covered. Students will use their acquired knowledge to reflect upon and enhance their professional digital presence.

**Term Offered:** Spring, Summer, Fall**COMM 2600 Public Presentations**

[3 credit hours]

Applies the principles of informative and persuasive communication in the construction, delivery, and critique of public presentations.

**Term Offered:** Spring, Summer, Fall**COMM 2810 Nonverbal Communication**

[3 credit hours]

Survey, analysis and application of research in nonverbal communication variables and phenomena.

**Term Offered:** Spring, Summer, Fall**COMM 2820 Group Communication**

[3 credit hours]

Theory and practice of group communication variables and processes with an emphasis on problem-solving approaches.

**Term Offered:** Spring, Summer, Fall**COMM 2830 Organizational Communication**

[3 credit hours]

This course examines the principles and theories of organizational communication. Particular attention will be devoted to how communication skills, culture, systems, ethics, new technology and power all affect, create and define organizations.

**Term Offered:** Spring, Summer, Fall**COMM 2840 Interpersonal Communication**

[3 credit hours]

Review and application of interpersonal communication theory and research in a variety of one-to-one social contexts.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**COMM 2870 Communication Theory**

[3 credit hours]

An introduction to human communication theory and research directed toward understanding and applying theory and research in various communication contexts and for various communication outcomes.

**Term Offered:** Spring, Summer, Fall**COMM 2890 Crisis & Conflict in Organizations**

[3 credit hours]

An examination of communication variables that may reduce the potential for workplace conflict. Students survey theoretical models, conduct interviews with professionals and write analyses of case studies of successful conflict management.

**Term Offered:** Spring, Summer, Fall**COMM 2990 Independent Study**

[1-4 credit hours]

A freshman/sophomore seminar in which the student pursues a problem of special interest in communication. A prospectus must be submitted to the faculty member with whom the student will work.

**Term Offered:** Spring, Summer, Fall**COMM 3120 Media Writing II**

[3 credit hours]

This course will focus on identifying, developing and writing online articles about community and business issues. Students also will become versed in major state, local and national news.

**Prerequisites:** COMM 2130 with a minimum grade of D-**Term Offered:** Spring, Fall**COMM 3150 Feature Writing**

[3 credit hours]

Theory and practice in writing in various kinds of discourse for newspapers, magazines and electronic publications and writing for specialized audiences. Developing context, analysis, background and appropriate standards of evidence for publication.

**Prerequisites:** COMM 2130 with a minimum grade of D-**Term Offered:** Spring, Fall**COMM 3180 Media Communication Law**

[3 credit hours]

Case studies and readings in libel, privacy, access and other legal issues arising from constitutional, judicial and administrative laws that affect mass communication.

**Term Offered:** Spring, Fall**COMM 3210 Audio Production 2**

[3 credit hours]

This advanced course is designed to further enhance students' proficiency of audio and program production skills through project based learning.

**Prerequisites:** COMM 2210 with a minimum grade of D-**Term Offered:** Spring, Fall**COMM 3260 Live Sports Production**

[3 credit hours]

This is a laboratory/cooperative course held in collaboration with other university departments and clients with the result of producing live video content for broadcast on the ESPN online platform, via the WatchESPN app & ESPN+ subscription service, and for live display in various venues such as the Glass Bowl, Savage Arena, Doermann Theatre, and online live streaming.

**Term Offered:** Spring, Fall**COMM 3270 Multimedia Newswriting**

[3 credit hours]

Training in the skills required in the preparation, writing and editing of both radio and television news.

**Prerequisites:** COMM 2130 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

**COMM 3330 Consumer Culture & the Media**

[3 credit hours]

The examination of practices, techniques, tools and strategies used in advertising and public relations campaigns and the subsequent impact these campaigns have on the growth of a contemporary consumer culture. In addition, this class will research the theory and techniques, historical underpinnings, and the overarching power structure of a capitalist media system.

**Prerequisites:** COMM 2000 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**COMM 3340 Visual Communication**

[3 credit hours]

This is a practice-based intermediate course with a hands-on approach to visual communication and focusses on the use of visual and textual elements in communication, and how they serve to inform, to persuade, and to entertain. Students will be trained in advanced features of industry standard software as they create a variety of multimedia artifacts in digital photo galleries, promotional material such as posters/brochures, newsletters for print/digital platforms, as well as memes and infographics.

**Prerequisites:** COMM 2150 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**COMM 3380 Media Producing and Performance**

[3 credit hours]

The class is designed to give students experience being in front of the camera through a variety of performance assignments that will give them practice at interview skills and reading off a teleprompter. In addition to performance, students will produce content by writing and creating material for different media platforms. Students will gain experience in both producing and performing for the media.

**Term Offered:** Spring, Fall**COMM 3500 Social Media II: Social Media Communication Strategies**

[3 credit hours]

This intermediate course will focus on the presence of social media in various contexts of communication (e.g., interpersonal, organizational, public, media, etc.). With an emphasis on diversity and inclusion, students will learn strategies for using social media in these contexts to effectively communicate with others. The strategies covered will focus on influential tools for social media engagement, content creation and maintenance techniques, the principles of social media analytics, building relationships with customers and clients, as well as planning, executing, and evaluating social media campaigns. Students will earn an external social media certificate and will use their acquired knowledge to analyze the effectiveness of social media communication strategies as well as create a digital portfolio. Social Media I is a prerequisite for this course.

**Prerequisites:** COMM 2500 with a minimum grade of C-**Term Offered:** Spring, Summer, Fall**COMM 3610 Speech Writing**

[3 credit hours]

Applies principles of effective public relations communication to the practice of developing speeches for others and composing publicity materials.

**Term Offered:** Spring, Fall**COMM 3710 Podcasting**

[3 credit hours]

In this course, students will focus on necessary and skills for podcast production, identifying a target audience, marketing and distribution, analytics, ethics, and monetization. Further, students will build their collaboration skills by working in teams to produce podcasts.

**Prerequisites:** COMM 2210 with a minimum grade of D-**Term Offered:** Spring, Fall**COMM 3720 Introduction to Public Relations**

[3 credit hours]

Public relations principles, planning and methods in business, government, educational institutions and other organizations. Examination of law, ethics, professionalism, history, theory, strategies and practices of the profession.

**Term Offered:** Spring, Summer, Fall**COMM 3750 Cultural Diversity in Communication**

[3 credit hours]

Cultural Diversity in Communication examines the basic elements of interpersonal communication and culture as the two relate to one another in a public relations environment. Emphasis is given to the influence of culture on the interpretation of the communication act and to the communication skills that enhance cultural diversity in communication while practicing public relations.

**Term Offered:** Spring, Summer, Fall**COMM 3760 Health Communication**

[3 credit hours]

Review and application of health communication theory, research, and practice in a variety of contexts.

**COMM 3800 Social Media III: Social Media Campaigns**

[3 credit hours]

In this advanced course, students will apply the knowledge they have garnered in previous social media courses to develop, implement, and evaluate a social media campaign for an actual client. The course will focus on key elements such as determining campaign objectives, identifying target markets, developing strategies to engage those markets through relevant social media channels, content creation and management, and metrics to measure progress and success. Social Media I and II are prerequisites for this course.

**Prerequisites:** COMM 2500 with a minimum grade of C- and COMM 3500 with a minimum grade of C-**Term Offered:** Spring, Summer, Fall**COMM 3820 Persuasion Theory**

[3 credit hours]

Examination of the theory and practices used in persuasive communication in public presentations, advertising, sales and political campaigns.

**Term Offered:** Spring, Summer, Fall**COMM 3830 Basic Principles Of Debate And Forensics**

[3 credit hours]

Theory and practice in reasoned discourse; analysis, evidence, logical forms and fallacies. Problems and procedures in administering a forensic program, teaching and directing debate and individual speaking events.

**Term Offered:** Spring

**COMM 3850 Research Methods in Everyday Life**

[3 credit hours]

Introduction to basic research methods and application of these methods in everyday life.

**Term Offered:** Spring, Fall**COMM 3880 Professional Business Communication**

[3 credit hours]

Developing oral and written business communication skills through practice in public speaking, interviewing, resume writing, and communication in various formats.

**Term Offered:** Spring, Summer, Fall**COMM 4040 Storytelling in Public and Private Spaces**

[3 credit hours]

Students will apply traditional storytelling techniques to empower sources to tell anecdotes during interviews, to tell their own true stories, to help readers understand the meaning of news as well as life's challenges. Via human-interest articles, writers will show rather than tell things.

**Term Offered:** Spring, Fall**COMM 4090 Media Communication Ethics**

[3 credit hours]

Investigation of problems and practical application of classical theories as well as current strategies to confront ethical crises in mass-media settings.

**Term Offered:** Spring, Fall**COMM 4100 Multimedia Journalism**

[4 credit hours]

Developing a thorough understanding of researching, writing, and presenting television/online news. Includes studio and remote productions.

**Prerequisites:** COMM 2220 with a minimum grade of D- or COMM 2160 with a minimum grade of D- and COMM 2130 with a minimum grade of C-

**Term Offered:** Spring, Fall**COMM 4110 High School Publications**

[3 credit hours]

Problems involved in the production of high school newspapers and yearbooks including approaches to design, advertising, content, news, editorials, administration and business management.

**Term Offered:** Fall**COMM 4220 Advanced Television Production**

[4 credit hours]

Advanced principles and aesthetic considerations in the production of various television programs. Includes working with remote equipment and digital editing.

**Prerequisites:** COMM 2160 with a minimum grade of D-

**Term Offered:** Spring, Fall**COMM 4250 Media Communication History**

[3 credit hours]

Historical consideration of the media from colonial era to the present, with special emphasis on learning through problem-solving and critical thinking about the role of mass communication as a force in shaping national identity.

**Term Offered:** Spring, Fall**COMM 4260 Communication in Non-Profit Organizations**

[3 credit hours]

COMM 4260 COMMUNICATING IN NON-PROFIT ORGANIZATIONS.

[3 hours] This course examines the communication strategies Non-Profit Organizations use to publicize their charitable goals to potential donors and how they describe their progress to governmental watchdog committees.

**COMM 4270 Special Event Planning**

[3 credit hours]

Examines the practices, and procedures associated with identification, analysis, planning, evaluation and control of the operational, fiscal, and legal risks of event planning.

**Term Offered:** Spring, Summer, Fall**COMM 4330 Integrated Media**

[3 credit hours]

The goal of this course is media design literacy. Students will develop the ability to create successful mediate messages through various mediums and new technologies.

**Prerequisites:** COMM 2630 with a minimum grade of D- or COMM 3340 with a minimum grade of D- or COMM 2130 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**COMM 4340 Advanced Visual Communication**

[3 credit hours]

This is an advanced capstone course in which students will apply knowledge gained from introductory and intermediate design courses to create a cohesive visual media and web presence for a real-world business, organization or other topics of interest. The course will focus on exploring industry standard software to develop and publish a culminating multimedia website. Students will also be introduced to the basics of HTML coding, CSS, and common WYSIWYG applications for website development.

**Prerequisites:** COMM 3340 with a minimum grade of C-

**Term Offered:** Spring, Fall**COMM 4630 Public Relations Campaigns**

[3 credit hours]

A thorough examination of the practices, techniques, tools and strategies used in contemporary public relations campaigns. Students will research the techniques and components of a PR strategic plan and then compile two original plans during the course of the semester.

**Prerequisites:** COMM 3720 with a minimum grade of D-

**Term Offered:** Spring, Fall**COMM 4640 Public Relations Case Studies**

[3 credit hours]

Analysis of successful and unsuccessful public relations efforts and programs. Emphasis on the theoretical and ethical foundations of successful public relations programming.

**Prerequisites:** COMM 3720 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**COMM 4820 Family Communication**

[3 credit hours]

Explores variables and processes of family communication emphasizing theory, definitions of family, roles & rules, conflict, intimacy, societal influences, and effects on the individual and the family as a whole.

**Term Offered:** Spring, Summer

**COMM 4830 Gender, Culture & Communication**

[3 credit hours]

Cross-listed as WGST-4350. Explores how gender and culture simultaneously shape and are shaped by communication through relationships, institutions, and society. WAC class.

**Term Offered:** Spring, Summer, Fall**COMM 4900 Communication Seminar**

[3-4 credit hours]

An in-depth examination of a communication topic, problem or media event. May be writing intensive.

**Term Offered:** Spring, Summer, Fall**COMM 4910 Communication Studies Capstone**

[3 credit hours]

Application of knowledge and skills through a project or research investigation related to an area of communication.

**Prerequisites:** COMM 2000 with a minimum grade of D- and COMM 2130 with a minimum grade of D- and COMM 2600 with a minimum grade of D- and COMM 2820 with a minimum grade of D- and COMM 2840 with a minimum grade of D- and COMM 2870 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**COMM 4940 Communication Internship**

[1-6 credit hours]

Professional training in communication relating to newspaper work, public relations, broadcasting etc. Arrangements with the appropriate communication organization must be made in consultation with the internship director prior to enrollment. Course offered P/NC.

**Term Offered:** Spring, Summer, Fall**COMM 4990 Independent Study**

[1-4 credit hours]

A seminar in which the student pursues a problem of special interest in communication. A prospectus must be submitted prior to registration to the participating faculty member.

**Term Offered:** Spring, Summer, Fall

## Honors in Communication

Communication majors may graduate with departmental honors by meeting the following qualifications:

**1. Admission**

- 3.25 minimum GPA in Communication
- 3.0 minimum cumulative GPA

**2. Requirements**

- Completion of 9 hours in courses (3000/4000 level) designated as Communication Honors (one course of which must be COMM 3850 Research Methods or equivalent approved by Faculty Advisor), and 2-4 credits of COMM 4990:091 Honors Thesis/Creative Project.

Any Communication course may be designated as "Honors" with the Instructor's permission and his/her assignment of suitable reading and a research/project in addition to normal course work.

## B.A. in Communication

Undergraduate faculty advisers (including Honors) are assigned by the Department. Contact the Department Chair.

## Bachelor of Arts Degree in Communication Studies

The Bachelor of Arts program provides a foundation for students to excel in organizational environments such as corporations, non-profits, and mass media. A balance of skills training and critical thinking subjects prepare students for careers in public relations, corporate communication, and related areas. Students are encouraged to be active in experiential and service learning projects through the department-sponsored student organizations such as the Communication Honors Society Lambda Pi Eta, professional fraternity Zeta Phi Eta, and PRSSA (Public Relations Student Society of America).

Communication studies has four concentrations in which you can major:

- Communication Studies, Digital Communication Concentration, BA
- Communication Studies, Interpersonal Communications Concentration, BA
- Communication, Media Communication Concentration, BA
- Communication Studies - Organizational and Strategic Communication Concentration, BA
- Communication Studies, Digital Communication Concentration, BA
- Communication Studies, Interpersonal Communication Concentration, BA (p. 47)
- Communication, Media Communication Concentration, BA (p. 48)
- Communication Studies - Organizational And Strategic Communication Concentration, BA (p. 48)

### Communication Studies, Digital Communication Concentration, BA

Code	Title	Hours
<b>REQUIRED COURSES for MAJOR: 18 CREDITS Students must achieve a minimum grade of C- in each of these core courses.</b>		
COMM 1010	Comm Principles And Practices	3
	or COMM 2000 Media Communication And Society	
COMM 2130	Media Writing 1	3
COMM 2500	Social Media I: Introduction to Social Media	3
COMM 2600	Public Presentations	3
COMM 2840	Interpersonal Communication	3
COMM 2870	Communication Theory	3

### REQUIRED COURSES FOR DIGITAL COMMUNICATION CONCENTRATION: 15 credits

COMM 2150	Digital Design for Media Communication	3
COMM 3500	Social Media II: Social Media Communication Strategies	3
COMM 3340	Visual Communication	3
COMM 4090	Media Communication Ethics (WAC)	3
COMM 3800	Social Media III: Social Media Campaigns	3
	or COMM 4340 Advanced Visual Communication	

### ELECTIVES COURSES FOR DIGITAL COMM CONCENTRATION: 9-17 credits (at least 6 credit hours at the 3000/4000 level)

COMM 2000	Media Communication And Society	3
COMM 2120	Reporting	3

COMM 2160	Single Camera Production	3
COMM 2210	Audio Production I	3
COMM 2220	Television Studio Production	3
COMM 2300	Photojournalism	3
COMM 2810	Nonverbal Communication	3
COMM 2820	Group Communication	3
COMM 2830	Organizational Communication	3
COMM 2890	Crisis & Conflict in Organizations	3
COMM 2990	Independent Study	1-4
COMM 3120	Media Writing II	3
COMM 3150	Feature Writing	3
COMM 3180	Media Communication Law (WAC)	3
COMM 3210	Audio Production 2	3
COMM 3260	Live Sports Production	3
COMM 3270	Multimedia Newswriting (WAC)	3
COMM 3330	Consumer Culture & the Media	3
COMM 3350		3
COMM 3380	Media Producing and Performance	3
COMM 3610	Speech Writing	3
COMM 3720	Introduction to Public Relations	3
COMM 3750	Cultural Diversity in Communication	3
COMM 3760	Health Communication	3
COMM 3820	Persuasion Theory (WAC)	3
COMM 3830	Basic Principles Of Debate And Forensics	3
COMM 3850	Research Methods in Everyday Life	3
COMM 3880	Professional Business Communication	3
COMM 4040	Storytelling in Public and Private Spaces	3
COMM 4100	Multimedia Journalism (WAC)	4
COMM 4110	High School Publications	3
COMM 4220	Advanced Television Production	4
COMM 4250	Media Communication History (WAC)	3
COMM 4260	Communication in Non-Profit Organizations	3
COMM 4270	Special Event Planning	3
COMM 4330	Integrated Media	3
COMM 4340	Advanced Visual Communication	3
COMM 4350		3
COMM 4630	Public Relations Campaigns	3
COMM 4640	Public Relations Case Studies (WAC)	3
COMM 4820	Family Communication (WAC)	3
COMM 4830	Gender, Culture & Communication (WAC)	3
COMM 4900	Communication Seminar	3-4
COMM 4910	Communication Studies Capstone	3
COMM 4940	Communication Internship	1-6
COMM 4990	Independent Study	1-4

## Communication Studies, Interpersonal Communication Concentration, BA

**Code**                      **Title**    **Hours**

**REQUIRED COURSES for MAJOR: 18 CREDITS Students must achieve a minimum grade of C- in each of these core courses.**

COMM 1010	Comm Principles And Practices	3
	or COMM 2000 Media Communication And Society	
COMM 2130	Media Writing 1	3
COMM 2500	Social Media I: Introduction to Social Media	3
COMM 2600	Public Presentations	3
COMM 2840	Interpersonal Communication	3
COMM 2870	Communication Theory	3

### REQUIRED COURSES FOR INTERPERSONAL COMMUNICATION CONCENTRATION: 15 credits

COMM 2820	Group Communication	3
COMM 3750	Cultural Diversity in Communication	3
COMM 3820	Persuasion Theory (WAC)	3
COMM 4830	Gender, Culture & Communication (WAC)	3
COMM 3880	Professional Business Communication	3
	or COMM 4910 Communication Studies Capstone	

### ELECTIVES COURSES FOR INTERPERSONAL COMMUNICATION CONCENTRATION: 9-17 credits (at least 6 credit hours at the 3000/4000 level)

COMM 2000	Media Communication And Society	3
COMM 2120	Reporting	3
COMM 2150	Digital Design for Media Communication	3
COMM 2160	Single Camera Production	3
COMM 2210	Audio Production I	3
COMM 2220	Television Studio Production	3
COMM 2300	Photojournalism	3
COMM 2810	Nonverbal Communication	3
COMM 2830	Organizational Communication	3
COMM 2890	Crisis & Conflict in Organizations	3
COMM 2990	Independent Study	1-4
COMM 3120	Media Writing II	3
COMM 3150	Feature Writing	3
COMM 3180	Media Communication Law (WAC)	3
COMM 3210	Audio Production 2	3
COMM 3260	Live Sports Production	3
COMM 3270	Multimedia Newswriting (WAC)	3
COMM 3330	Consumer Culture & the Media	3
COMM 3340	Visual Communication	3
COMM 3380	Media Producing and Performance	3
COMM 3350		3
COMM 3500	Social Media II: Social Media Communication Strategies	3
COMM 3610	Speech Writing	3
COMM 3720	Introduction to Public Relations	3
COMM 3760	Health Communication	3
COMM 3800	Social Media III: Social Media Campaigns	3
COMM 3830	Basic Principles Of Debate And Forensics	3
COMM 3850	Research Methods in Everyday Life	3
COMM 3880	Professional Business Communication	3
COMM 4040	Storytelling in Public and Private Spaces	3
COMM 4090	Media Communication Ethics (WAC)	3



COMM 4100	Multimedia Journalism (WAC)	4	COMM 2890	Crisis & Conflict in Organizations	3
COMM 4110	High School Publications	3	COMM 2990	Independent Study	1-4
COMM 4220	Advanced Television Production	4	COMM 3120	Media Writing II	3
COMM 4250	Media Communication History (WAC)	3	COMM 3150	Feature Writing	3
COMM 4260	Communication in Non-Profit Organizations	3	COMM 3210	Audio Production 2	3
COMM 4270	Special Event Planning	3	COMM 3260	Live Sports Production	3
COMM 4330	Integrated Media	3	COMM 3270	Multimedia Newswriting (WAC)	3
COMM 4340	Advanced Visual Communication	3	COMM 3330	Consumer Culture & the Media	3
COMM 4350		3	COMM 3340	Visual Communication	3
COMM 4630	Public Relations Campaigns	3	COMM 3350		3
COMM 4640	Public Relations Case Studies (WAC)	3	COMM 3500	Social Media II: Social Media Communication Strategies	3
COMM 4820	Family Communication (WAC)	3	COMM 3610	Speech Writing	3
COMM 4900	Communication Seminar	3-4	COMM 3710	Podcasting	3
COMM 4910	Communication Studies Capstone	3	COMM 3720	Introduction to Public Relations	3
COMM 4940	Communication Internship	1-6	COMM 3750	Cultural Diversity in Communication	3
COMM 4990	Independent Study	1-4	COMM 3760	Health Communication	3

### Communication, Media Communication Concentration, BA

**Code Title Hours**

**REQUIRED COURSES for MAJOR: 18 CREDITS Students must achieve a minimum grade of C- in each of these core courses.**

COMM 1010	Comm Principles And Practices	3
or COMM 2000 Media Communication And Society		
COMM 2130	Media Writing 1	3
COMM 2500	Social Media I: Introduction to Social Media	3
COMM 2600	Public Presentations	3
COMM 2840	Interpersonal Communication	3
COMM 2870	Communication Theory	3

**REQUIRED COURSES FOR MEDIA COMMUNICATION CONCENTRATION: 15-16 credits**

COMM 2160	Single Camera Production	3
COMM 2210	Audio Production I	3
COMM 3180	Media Communication Law (WAC)	3
or COMM 4090 Media Communication Ethics		
COMM 3380	Media Producing and Performance	3
Choose one of the following:		3-4
COMM 4100	Multimedia Journalism (WAC)	
COMM 4220	Advanced Television Production	
COMM 4330	Integrated Media	

**ELECTIVES COURSES FOR MEDIA COMM CONCENTRATION: 9-17 credits (at least 6 credit hours at the 3000/4000 level)**

COMM 2000	Media Communication And Society	3
COMM 2120	Reporting	3
COMM 2150	Digital Design for Media Communication	3
COMM 2220	Television Studio Production	3
COMM 2300	Photojournalism	3
COMM 2810	Nonverbal Communication	3
COMM 2820	Group Communication	3
COMM 2830	Organizational Communication	3

COMM 2890	Crisis & Conflict in Organizations	3
COMM 2990	Independent Study	1-4
COMM 3120	Media Writing II	3
COMM 3150	Feature Writing	3
COMM 3210	Audio Production 2	3
COMM 3260	Live Sports Production	3
COMM 3270	Multimedia Newswriting (WAC)	3
COMM 3330	Consumer Culture & the Media	3
COMM 3340	Visual Communication	3
COMM 3350		3
COMM 3500	Social Media II: Social Media Communication Strategies	3
COMM 3610	Speech Writing	3
COMM 3710	Podcasting	3
COMM 3720	Introduction to Public Relations	3
COMM 3750	Cultural Diversity in Communication	3
COMM 3760	Health Communication	3
COMM 3800	Social Media III: Social Media Campaigns	3
COMM 3820	Persuasion Theory (WAC)	3
COMM 3830	Basic Principles Of Debate And Forensics	3
COMM 3850	Research Methods in Everyday Life	3
COMM 3880	Professional Business Communication	3
COMM 4040	Storytelling in Public and Private Spaces	3
COMM 4090	Media Communication Ethics	3
COMM 4110	High School Publications	3
COMM 4250	Media Communication History (WAC)	3
COMM 4260	Communication in Non-Profit Organizations	3
COMM 4270	Special Event Planning	3
COMM 4340	Advanced Visual Communication	3
COMM 4350		3
COMM 4630	Public Relations Campaigns	3
COMM 4640	Public Relations Case Studies (WAC)	3
COMM 4820	Family Communication (WAC)	3
COMM 4830	Gender, Culture & Communication (WAC)	3
COMM 4900	Communication Seminar	3-4
COMM 4910	Communication Studies Capstone	3
COMM 4940	Communication Internship	1-6
COMM 4990	Independent Study	1-4

### Communication Studies, Organizational and Strategic Communication Concentration, BA

**Code Title Hours**

**REQUIRED COURSES for MAJOR: 18 CREDITS Students must achieve a minimum grade of C- in each of these core courses.**

COMM 1010	Comm Principles And Practices	3
or COMM 2000 Media Communication And Society		
COMM 2130	Media Writing 1	3
COMM 2500	Social Media I: Introduction to Social Media	3
COMM 2600	Public Presentations	3
COMM 2840	Interpersonal Communication	3



COMM 2870	Communication Theory	3
<b>REQUIRED COURSES FOR ORGANIZATIONAL AND STRATEGIC COMMUNICATION CONCENTRATION: 15 credits</b>		
COMM 2830	Organizational Communication	3
COMM 3720	Introduction to Public Relations	3
COMM 3750	Cultural Diversity in Communication	3
COMM 4640	Public Relations Case Studies (WAC)	3
COMM 3880	Professional Business Communication	3
	or COMM 4630 Public Relations Campaigns	
<b>ELECTIVES COURSES FOR ORGANIZATIONAL AND STRATEGIC COMMUNICATION CONCENTRATION: 9-17 credits (at least 6 credit hours at the 3000/4000 level)</b>		
COMM 2000	Media Communication And Society	3
COMM 2120	Reporting	3
COMM 2150	Digital Design for Media Communication	3
COMM 2160	Single Camera Production	3
COMM 2210	Audio Production I	3
COMM 2220	Television Studio Production	3
COMM 2300	Photojournalism	3
COMM 2810	Nonverbal Communication	3
COMM 2820	Group Communication	3
COMM 2890	Crisis & Conflict in Organizations	3
COMM 2990	Independent Study	1-4
COMM 3120	Media Writing II	3
COMM 3150	Feature Writing	3
COMM 3180	Media Communication Law (WAC)	3
COMM 3210	Audio Production 2	3
COMM 3260	Live Sports Production	3
COMM 3270	Multimedia Newswriting (WAC)	3
COMM 3330	Consumer Culture & the Media	3
COMM 3340	Visual Communication	3
COMM 3350		3
COMM 3380	Media Producing and Performance	3
COMM 3500	Social Media II: Social Media Communication Strategies	3
COMM 3610	Speech Writing	3
COMM 3760	Health Communication	3
COMM 3800	Social Media III: Social Media Campaigns	3
COMM 3820	Persuasion Theory (WAC)	3
COMM 3830	Basic Principles Of Debate And Forensics	3
COMM 3850	Research Methods in Everyday Life	3
COMM 4040	Storytelling in Public and Private Spaces	3
COMM 4090	Media Communication Ethics (WAC)	3
COMM 4100	Multimedia Journalism (WAC)	4
COMM 4110	High School Publications	3
COMM 4220	Advanced Television Production	4
COMM 4250	Media Communication History (WAC)	3
COMM 4260	Communication in Non-Profit Organizations	3
COMM 4270	Special Event Planning	3
COMM 4330	Integrated Media	3

COMM 4340	Advanced Visual Communication	3
COMM 4350		3
COMM 4630	Public Relations Campaigns	3
COMM 4820	Family Communication (WAC)	3
COMM 4830	Gender, Culture & Communication (WAC)	3
COMM 4900	Communication Seminar	3-4
COMM 4910	Communication Studies Capstone	3
COMM 4940	Communication Internship	1-6
COMM 4990	Independent Study	1-4

- Communication Studies, Digital Communication Concentration, BA
- Communication Studies, Interpersonal Communication Concentration, BA (p. 47)
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- Communication Studies - Organizational And Strategic Communication Concentration, BA (p. 48)

### Communication Studies, Digital Communication Concentration, BA

First Term		Hours
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
COMM 1010	Comm Principles And Practices or COMM 2000 or Media Communication And Society	3
Elementary Foreign Language I		4
<b>Hours</b>		<b>14</b>
Second Term		Hours
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
COMM 2600	Public Presentations	3
COMM 2840	Interpersonal Communication	3
Natural Sciences Core		3
Elementary Foreign Language II		4
<b>Hours</b>		<b>16</b>
Third Term		Hours
COMM 2130	Media Writing 1	3
COMM 2500	Social Media I: Introduction to Social Media	3
Intermediate Foreign Language I or approved culture course		3
Social Sciences Core		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>16</b>
Fourth Term		Hours
COMM 2870	Communication Theory	3
Intermediate Foreign Language II or approved culture course		3
Social Sciences Core		3
ENGL 2710-ENGL 2800 Arts/Humanities Core (English Lit)		3
Arts/Humanities Core (History)		3
<b>Hours</b>		<b>15</b>



**Fifth Term**

COMM 2150	Digital Design for Media Communication	3
COMM 3500	Social Media II: Social Media Communication Strategies	3
Diversity of US		3
COMM Major Elective		3
Related or Minor Course		3
<b>Hours</b>		<b>15</b>

**Sixth Term**

COMM 3340	Visual Communication	3
Required Arts Elective		3
Elective (WAC)		3
COMM Major Elective		3
Related or Minor Course		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

COMM 4090	Media Communication Ethics (WAC)	3
Non-US Diversity		3
Elective Humanities		3
COMM Major Elective		4
Related or Minor Course		3
<b>Hours</b>		<b>16</b>

**Eighth Term**

COMM 3880	Professional Business Communication or COMM 4340 or Advanced Visual Communication	3
COMM Major Elective		3
COMM Major Elective		4
Related or Minor Course		3
<b>Hours</b>		<b>13</b>

<b>Total Hours</b>		<b>120</b>
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**Communication Studies, Interpersonal Communication Concentration, BA**

<b>First Term</b>	<b>Hours</b>	
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
COMM 1010	Comm Principles And Practices or COMM 2000 or Media Communication And Society	3
Elementary Foreign Language I		4
<b>Hours</b>		<b>14</b>

**Second Term**

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
COMM 2600	Public Presentations	3
COMM 2840	Interpersonal Communication	3
Natural Sciences Core		3
Elementary Foreign Language II		4
<b>Hours</b>		<b>16</b>

**Third Term**

COMM 2130	Media Writing 1	3
COMM 2500	Social Media I: Introduction to Social Media	3
Intermediate Foreign Language I or approved culture course		3
Social Sciences Core		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>16</b>

**Fourth Term**

COMM 2870	Communication Theory	3
Intermediate Foreign Language II or approved culture course		3
Social Sciences Core		3
ENGL 2710-ENGL 2800 Arts/Humanities Core (English Lit)		3
Arts/Humanities Core (History)		3
<b>Hours</b>		<b>15</b>

**Fifth Term**

COMM 2820	Group Communication	3
COMM 3750	Cultural Diversity in Communication	3
Diversity of US		3
COMM Major Elective		3
Related or Minor Course		3
<b>Hours</b>		<b>15</b>

**Sixth Term**

COMM 3820	Persuasion Theory (WAC)	3
COMM Major Elective		3
Required Arts Elective		3
Elective (WAC)		3
Related or Minor Course		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

COMM 4830	Gender, Culture & Communication (WAC)	3
Non-US Diversity		3
Elective Humanities		3
COMM Major Elective		4
Related or Minor Course		3
<b>Hours</b>		<b>16</b>

**Eighth Term**

COMM 3880	Professional Business Communication or COMM 4910 or Communication Studies Capstone	3
COMM Major Elective		3
COMM Major Elective		4
Related or Minor Course		3
<b>Hours</b>		<b>13</b>

<b>Total Hours</b>		<b>120</b>
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### Communication, Media Communication Concentration, BA

First Term		Hours
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
COMM 1010	Comm Principles And Practices or COMM 2000 or Media Communication And Society	3
Elementary Foreign Language I		4
<b>Hours</b>		<b>14</b>

Second Term		Hours
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
COMM 2600	Public Presentations	3
COMM 2840	Interpersonal Communication	3
Natural Sciences Core		3
Elementary Foreign Language II		4
<b>Hours</b>		<b>16</b>

Third Term		Hours
COMM 2130	Media Writing 1	3
COMM 2500	Social Media I: Introduction to Social Media	3
Intermediate Foreign Language I or approved culture course		3
Social Sciences Core		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>16</b>

Fourth Term		Hours
COMM 2870	Communication Theory	3
Intermediate Foreign Language II or approved culture course		3
Social Sciences Core		3
ENGL 2710-ENGL 2800 Arts/Humanities Core (English Lit)		3
Arts/Humanities Core (History)		3
<b>Hours</b>		<b>15</b>

Fifth Term		Hours
COMM 2210	Audio Production I	3
COMM 2160	Single Camera Production	3
Diversity of US		3
COMM Major Elective		3
Related or Minor Course		3
<b>Hours</b>		<b>15</b>

Sixth Term		Hours
COMM 3380	Media Producing and Performance	3
Required Arts Elective		3
Elective (WAC)		3
COMM Major Elective		3
Related or Minor Course		3
<b>Hours</b>		<b>15</b>

#### Seventh Term

COMM 3180	Media Communication Law (WAC) or COMM 4090 or Media Communication Ethics	3
Non-US Diversity		3
Elective Humanities		3
COMM Major Elective		4
Related or Minor Course		3
<b>Hours</b>		<b>16</b>

#### Eighth Term

<b>Choose one of the following:</b>		<b>3-4</b>
COMM 4100	Multimedia Journalism	
COMM 4220	Advanced Television Production	
COMM 4330	Integrated Media	
COMM Major Elective		3
COMM Major Elective		4
Related or Minor Course		3
<b>Hours</b>		<b>13-14</b>
<b>Total Hours</b>		<b>120-121</b>

### Communication Studies - Organizational And Strategic Communication Concentration, BA

First Term		Hours
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
COMM 1010	Comm Principles And Practices or COMM 2000 or Media Communication And Society	3
Elementary Foreign Language I		4
<b>Hours</b>		<b>14</b>

Second Term		Hours
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
COMM 2600	Public Presentations	3
COMM 2840	Interpersonal Communication	3
Natural Sciences Core		3
Elementary Foreign Language II		4
<b>Hours</b>		<b>16</b>

Third Term		Hours
COMM 2130	Media Writing 1	3
COMM 2500	Social Media I: Introduction to Social Media	3
Intermediate Foreign Language I or approved culture course		3
Social Sciences Core		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>16</b>

Fourth Term		Hours
COMM 2870	Communication Theory	3
Intermediate Foreign Language II or approved culture course		3
Social Sciences Core		3
Arts/Humanities Core (History)		3



ENGL 2710-ENGL 2800 Arts/Humanities Core (English Lit)	3
<b>Hours</b>	<b>15</b>
<b>Fifth Term</b>	
COMM 2830 Organizational Communication	3
COMM 3720 Introduction to Public Relations	3
Diversity of US	3
COMM Major Elective	3
Related or Minor Course	3
<b>Hours</b>	<b>15</b>
<b>Sixth Term</b>	
COMM 3750 Cultural Diversity in Communication	3
Required Arts Elective	3
Elective (WAC)	3
COMM Major Elective	3
Related or Minor Course	3
<b>Hours</b>	<b>15</b>
<b>Seventh Term</b>	
COMM 4640 Public Relations Case Studies (WAC)	3
Non-US Diversity	3
Elective Humanities	3
COMM Major Elective	4
Related or Minor Course	3
<b>Hours</b>	<b>16</b>
<b>Eighth Term</b>	
COMM 3880 Professional Business Communication or COMM 4630 or Public Relations Campaigns	3
COMM Major Elective	3
COMM Major Elective	4
Related or Minor Course	3
<b>Hours</b>	<b>13</b>
<b>Total Hours</b>	<b>120</b>

### Communication, Digital Communication Concentration, BA

- Articulate the history and evolution of digital communication.
- Create successful visual narratives in a variety of digital contexts with a broad understanding of information architecture.
- Discriminately select appropriate digital platforms, tools, and content to reach and professionally communicate information to (a) defined audience(s).
- Evaluate, critique, and refine digital content.
- Effectively and ethically use various digital tools and platforms to accomplish personal and professional goals.
- Apply gained knowledge and skills to enhance digital citizenship.
- Understand and be adequately prepared for a career in the rapidly evolving digital industry.

### Communication, Interpersonal Communication Concentration, BA

- Define, explain, and apply basic terminology, principles, and theories to a variety of communication situations in interpersonal relationships.
- Analyze, adjust, and improve communication behaviors to achieve interpersonal communication goals.
- Evaluate characteristics of specific audiences and effectively use a variety of communication channels to successfully communicate in personal and professional settings.
- Evaluate and apply how concepts like culture, gender, ethnicity, and other societal categories impact interpersonal communication in various settings.
- Create a portfolio that can be used for application to graduate school or in a career search in areas such as sales; training; consulting; fundraising; advocacy; research; management; negotiation; and direction and coordination of community outreach programs, corporate communication, customer service, nonprofit organizations, and more.

### Communication, Organizational And Strategic Communication Concentration, BA

- Create original and persuasive public relations campaigns.
- Devise solutions to contemporary challenges in public relations campaigns.
- Demonstrate comprehension of public relations theory.
- Assess and critique current public relation trends.
- Construct and deliver persuasive oral presentations based on audience analysis.

### Communication, Media Communication Concentration, BA

- Produce professional content for the media designed to either inform, entertain or persuade.
- Perform in an audio and video setting in a professional manner.
- Demonstrate proficiency in news writing techniques for different media platforms and be able to critically evaluate media content across platforms.
- Demonstrate proficiency in the use of media technology and professional software.
- Demonstrate measurable improvement in over all knowledge in the field of media communication.
- Assemble and publish a professional online portfolio.

## General Communication Minor

Code	Title	Hours
<b>Required Courses</b>		
COMM 2000 or COMM 1010	Media Communication And Society Comm Principles And Practices	3
<b>Choose one course from the following</b>		<b>3</b>
COMM 2130	Media Writing I	

COMM 2500	Social Media I: Introduction to Social Media
COMM 2600	Public Presentations
COMM 2840	Interpersonal Communication
COMM 2870	Communication Theory

**Elective Courses**

Select 12 hours from any other COMM course not otherwise taken 12

**Total Hours 18**

- Through written and oral presentation, students will present information professionally in both mediated and live formats designed to either inform, entertain or persuade.
- Students will analyze problems in communication situations and create a variety of possible solutions.
- Students will demonstrate a high level of writing proficiency.

## Media Production Communication Certificate

Code	Title	Hours
COMM 2210	Audio Production I	3
COMM 2160	Single Camera Production	3
COMM 2220	Television Studio Production	3
	or COMM 3260 Live Sports Production	

**Total Hours 9**

- PLO 1: Production Communication professionals use technical skills to produce media content. In this certificate program, students will learn how to: -use high end video camera equipment
- PLO 2: -edit video and audio
- PLO 3: -use multiple formats to develop and distribute media
- PLO 4: -produce engaging and professional quality video
- PLO 5: -direct news programs
- PLO 6: -produce graphics for television

## Organizational Communication Certificate

Code	Title	Hours
COMM 2830	Organizational Communication	3
COMM 2840	Interpersonal Communication	3
	or COMM 2890 Crisis & Conflict in Organizations	
COMM 3880	Professional Business Communication	3

**Total Hours 9**

- PLO 1: Organizational communication focuses on a variety of messaging within organizations. Students will learn how to: -communicate in professional settings
- PLO 2: -hone leadership communication skills
- PLO 3: -deliver effective work presentations
- PLO 4: -analyze effective organizational structure

- PLO 5: -effectively work in teams and groups
- PLO 6: -network and manage interpersonal work relationships

## Public Relations Communication Certificate

Code	Title	Hours
COMM 3720	Introduction to Public Relations	3
COMM 4630	Public Relations Campaigns	3
COMM 4640	Public Relations Case Studies	3

**Total Hours 9**

- PLO 1: Public relations professionals manage community relations between an organization and the public. In this certificate program, students will learn how to: -strategize about the public facing side of organizations
- PLO 2: -manage public relations campaigns
- PLO 3: -manage social media feeds for an organization
- PLO 4: -engage in strategic crisis communication
- PLO 5: -write press releases for an organization
- PLO 6: -write speeches for organizational events
- PLO 7: -plan special events (such as fundraisers) for organizations
- PLO 8: -client management

## Social Media Communication Certificate

Code	Title	Hours
COMM 2500	Social Media I: Introduction to Social Media	3
COMM 3500	Social Media II: Social Media Communication Strategies	3
COMM 3800	Social Media III: Social Media Campaigns	3

- PLO 1: Social media professionals manage social media strategy for organizations. In this certificate program, students will learn how to: -manage social media feeds
- PLO 2: -use social media analytics to monitor public image
- PLO 3: -conduct market research analysis via social media
- PLO 4: -design social media campaigns
- PLO 5: -develop content for specific social feeds
- PLO 6: -write press releases to be shared on social media

## Department of Economics

David Black, Interim Chair, Advisor

### Early Admission to Master's Degree Program in Economics

A special opportunity exists for undergraduate students at the University of Toledo interested in pursuing a Master's of Arts Degree in Economics. Being evaluated by the same criteria as graduate students, undergraduate students have the opportunity to apply advanced-level work to their undergraduate degree requirements while, at the same time, securing a significant "head start" toward satisfying the requirements for



a master's degree in Economics. Qualifying undergraduate students are allowed to apply particular courses (and associated credit hours) towards both their undergraduate and graduate degree requirements.

If accepted into this program, undergraduate students may register for up to 3 graduate-level Economics courses (9 credit hours). Because the M.A. degree in Economics requires 30 credit hours of graduate-level work, students who complete 9 of those hours as an undergraduate student have to complete only 21 additional credit hours as a graduate student to receive their master's degree.

Undergraduate students with a declared major in Economics and a cumulative GPA in Economics courses of 3.3 or higher are eligible for this program. Students accepted into this program must consult and receive prior approval from the Department of Economics' graduate director as to which courses at the University of Toledo may be applied for dual credit toward both undergraduate and graduate degree requirements. Students interested in this program are encouraged to speak with the Department of Economics' Chair, graduate director, or undergraduate advisor for additional information and the application form for this program.

## Degrees Offered

- B.A. in Economics (p. 57)
- Advanced Economics Certificate (p. 61)
- Advanced Quantitative Economics Certificate (p. 62)
- Environmental Economics Certificate (p. 62)
- Public Economics Certificate (p. 62)
- Minor in Economics (p. 63)
- Minor in Environmental Economics (p. 63)
- Minor in Public Economics (p. 63)

Qualified juniors and seniors are invited to work for the citation "honors in economics."

1. **Admission:** The Honors Program is open to all undergraduate economics majors whether or not they are enrolled in College Honors. Interested students should speak with the department undergraduate advisor. Ordinarily, the student must have a minimum cumulative GPA of 3.0.
2. **Requirements:** To be awarded departmental honors in economics, the student must take nine of the 30-hour major requirements in the honors and honors recognition courses offered by the department. Every honors student must complete ECON 4960: Senior Honors Thesis and then two other honors courses. Every regularly scheduled 3000 or 4000-level course can be given honors recognition by completing an honors contract with the course instructor detailing the readings and research in addition to the normal requirements of the course. Moreover, any student accepted into the department's early admission program and taking up to two 5000 level economics courses will have those 5000 level courses given honors recognition. To remain in the program, the student ordinarily must maintain a minimum GPA of 3.3 in the major.

### ECON 1010 Introduction To Economic Issues

[3 credit hours]

Basic concepts and theory applications to major economic problems and controversies. Designed primarily to meet requirements of students not planning to take upper level economics courses. (not for major credit)

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

### ECON 1150 Principles Of Macroeconomics

[3 credit hours]

Explaining the level and the growth of economic activity, its fluctuations and ways of achieving greater stability, including the roles of money, banking and international finance.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

### ECON 1155 Principles of Macroeconomics with Data Applications

[3 credit hours]

Theoretical explanations on the level and the growth of economic activity, its fluctuations and ways of achieving greater economic stability – complimented by introductory data analysis examining the veracity of predictions by theoretic models. No prior experience using data is necessary for successful completion of this course.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences

### ECON 1200 Principles Of Microeconomics

[3 credit hours]

Theories of consumer behavior; determination of input and output; prices and quantities in factor and product markets; analysis of international trade and policy; applications include labor markets and income distribution.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

### ECON 2500 Topics In International Economics

[3 credit hours]

Why nations trade; comparative advantage and gains from trade; free trade versus protectionism; free versus "fair" trade; balance of payments problems.

### ECON 2810 Introduction to Econometrics

[3 credit hours]

Introduction to econometrics with an emphasis on the intuitive understanding and practical applications of the basic tools of regression analysis. Course covers hypothesis testing, single and multiple regression equations, and the problems and possible solutions to data that are associated with multicollinearity, autocorrelation and heteroskedasticity.

**Prerequisites:** MATH 2600 (may be taken concurrently) with a minimum grade of D- or MATH 3610 (may be taken concurrently) with a minimum grade of D- or BUAD 2060 (may be taken concurrently) with a minimum grade of D- or PSY 2100 (may be taken concurrently) with a minimum grade of D- or SOC 3290 (may be taken concurrently) with a minimum grade of D- or GEPL 4420 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Fall

**ECON 3050 Economics Of Gender**

[3 credit hours]

Analysis of labor market outcomes and income distribution characteristics resulting from gender differences; gender-related economic outcomes: the "feminization of poverty," persistent male-female wage differential, expanding proportions of female-headed and same sex households.

**Term Offered:** Spring, Summer, Fall  
Multicultural US Diversity

**ECON 3080 Economics Of Crime**

[3 credit hours]

Study of crime as an economic activity; costs of crime to the community; economic approach to crime reduction.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ECON 3120 Topics In Monetary And Financial Economics**

[3 credit hours]

Current issues in money, banking and finance; interest rate theory; international money and banking; monetary policy and modeling monetary economies.

**Prerequisites:** ECON 1150 with a minimum grade of D-

**Term Offered:** Fall

**ECON 3150 Intermediate Macroeconomic Theory**

[3 credit hours]

National income accounting; theory of income determination; causal relationships; analysis of consumption, investment, government and foreign demand functions; integration of theories of income, output, money and interest.

**Prerequisites:** ECON 1150 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ECON 3200 Intermediate Micro-Economic Theory**

[3 credit hours]

Consumer theory, utility and indifference curve analysis, theory of the firm, industry pricing in perfect and imperfect competition and distribution theory.

**Prerequisites:** ECON 1200 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ECON 3240 Environmental Economics**

[3 credit hours]

Economic analysis of the causes of environmental problems; Examination of various economic policies for addressing current environmental issues such as pollution control policies and optimal use of resources.

**Term Offered:** Spring, Summer, Fall

**ECON 3250 Economics Of Sports**

[3 credit hours]

This course will survey the theoretic and applied economic issues within the world of professional and amateur sports, focusing on industrial organization, labor economics and public finance.

**Prerequisites:** ECON 1200 with a minimum grade of D- or ECON 1150 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ECON 3260 The Economics of Climate Change**

[3 credit hours]

Climate change can be viewed as a fundamentally economic problem. However, climate change has a unique set of attributes that make standard economic analysis difficult to apply. It is a global problem requiring unprecedented international cooperation. Economists view climate change as a risk that creates uncertainty about the future. Students will learn how people value alternative reductions in climate risk. An understating of this trade-off is necessary to help design more cost-effective climate change policy.

**ECON 3270 Natural Resource Economics - WAC**

[3 credit hours]

Economic analysis of natural resource conservation and use, considering the objectives of efficiency and sustainability. Topics include energy, minerals, marine resources, land and agriculture, outdoor recreation, biodiversity and wildlife management.

**Term Offered:** Spring, Summer, Fall

**ECON 3300 BENEFIT-COST ANALYSIS**

[3 credit hours]

The study of the evaluation of competing public policy alternatives and projects to more efficiently allocate society's resources. Applications include transportation, public health, criminal justice, education, and the environment.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D- or ECON 3240 with a minimum grade of D- or ECON 3270 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ECON 3410 World Economic History**

[3 credit hours]

Study of economic growth throughout the world, particularly in Europe, Asia, Africa and Latin America. Analysis of economic institutions, technological change, industrialization and living standards.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

**ECON 3500 Comparative Economic Systems**

[3 credit hours]

Theory and ideology of market, socialist and mixed economic systems. Case study of the economies of U.S., Russia, China and India.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

**Term Offered:** Spring, Summer

Multicultural Non-US Diversity

**ECON 3600 Urban Economics**

[3 credit hours]

Analysis bearing on intermetropolitan and intrametropolitan growth processes.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

**ECON 3750 Survey of Health Economics**

[3 credit hours]

Introduction to the economic analysis of health and health care. Topics include medical and allied manpower, hospitals, drugs and economic evaluation of health programs.

**Prerequisites:** ECON 1200 with a minimum grade of D- or ECON 1150 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ECON 3810 Applied Econometrics**

[3 credit hours]

Topics emphasize applications of a wide range of statistical approaches to time-series, cross-sectional, panel, and other types of data. Included are micro-econometric topics such as panel data models, qualitative choice models, hazard models and others. The time series macro-economic topics include model solidarity, cointegration, error correction mechanisms, ARCH and GARCH models, economic forecasting, and others.

**Prerequisites:** ECON 2810 with a minimum grade of D-**Term Offered:** Spring, Fall**ECON 3900 Undergraduate Seminar**

[1-4 credit hours]

Small group study of special topics initiated either by student or a faculty member.

**Term Offered:** Spring, Fall**ECON 3910 Honors Research**

[1-4 credit hours]

Study of special topics initiated either by student or a faculty member.

**Term Offered:** Spring, Fall**ECON 3920 Honors Reading**

[1-4 credit hours]

Study of special topics initiated either by student or a faculty member.

**Term Offered:** Spring, Fall**ECON 4050 Population Economics**

[3 credit hours]

Interaction of economic changes and demographic variables; topics include birth rates, women's employment, marriage and divorce, aging and mortality, migration and overpopulation.

**Prerequisites:** (ECON 1150 (may be taken concurrently) with a minimum grade of D- or ECON 1200 (may be taken concurrently) with a minimum grade of D-) and ECON 2810 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring**ECON 4120 Monetary Theory**

[3 credit hours]

Modern theories of financial markets, money and the theory of interest rates, money's role in general equilibrium and growth models and money's ability to cause inflation.

**Prerequisites:** ECON 3150 with a minimum grade of D-**Term Offered:** Spring**ECON 4130 Monetary And Fiscal Policy**

[3 credit hours]

Changes in the quantity of money and alternative government spending, taxation and debt policies, interrelations of fiscal and monetary policies in stabilization programs.

**Prerequisites:** ECON 3150 with a minimum grade of D-**Term Offered:** Spring**ECON 4150 Advanced Macroeconomic Theory**

[3 credit hours]

Theories of consumption and investment. Empirical estimates. Cycle and growth theory, multiplier-accelerator analysis and growth models. The theory and instruments of macroeconomic policy. Dynamic Macroeconomic Theory.

**Prerequisites:** ECON 3150 with a minimum grade of D-**Term Offered:** Fall**ECON 4200 Advanced Microeconomic Theory**

[3 credit hours]

Advanced topics in microeconomic theory, consumer behavior, the firm and market structure, distribution theory, equilibrium conditions, welfare economics.

**Prerequisites:** ECON 3200 with a minimum grade of D-**Term Offered:** Fall**ECON 4240 Applied Environmental Economics**

[3 credit hours]

The economics of the environment and natural resources using applied welfare theory, benefit-cost analyses, and nonmarket valuation. Examination of economic instruments, such as marketable permits, for solving environmental problems.

**Prerequisites:** ECON 1200 with a minimum grade of D- or ECON 3240 with a minimum grade of D- or ECON 3270 with a minimum grade of D-

**Term Offered:** Spring**ECON 4250 Labor Economics**

[3 credit hours]

The labor market is studied. Topics include labor force characteristics, wage determination, hours and condition of work, human capital models, unemployment, labor union structure and growth, and modern labor legislation.

**Prerequisites:** ECON 1200 (may be taken concurrently) with a minimum grade of D- and ECON 2810 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring**ECON 4260 Behavioral Economics**

[3 credit hours]

Economic analysis of decisions made by people. Topics include decision-making under risk and uncertainty, strategic decision-making, and experimental economics.

**Prerequisites:** ECON 1200 (may be taken concurrently) with a minimum grade of D- and ECON 2810 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring**ECON 4280 Energy Economics**

[3 credit hours]

This course explores the theoretical and empirical perspectives on the demand and supply sides of the energy markets. This course starts with an energy outlook in both domestic and global scales. Then it discusses the natural resource modelling, energy supply, and the behavioral underpinnings of the energy demand. The course continues with current and historical aspects of national and global markets for oil, natural gas, coal, electricity, nuclear power, and renewable energy..

**Prerequisites:** ECON 1150 with a minimum grade of D- and ECON 1200 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**ECON 4300 Mathematical Economics**

[3 credit hours]

Development and applications of the mathematical tools used by economists. Differential and integral calculus, linear algebra, transcendental functions and series.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

**Term Offered:** Fall



**ECON 4510 International Economics I**

[3 credit hours]

Theory of international trade; commercial policy; costs and benefits, economic integration; trade and economic growth and balance of payments problems.

**Prerequisites:** ECON 1150 with a minimum grade of D-

**Term Offered:** Spring, Summer

**ECON 4550 Economic Development**

[3 credit hours]

Economic problems and policies in less-developed countries, including such topics as schooling, population growth, urbanization, landholding, income distribution, capital formation and development strategies.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

**ECON 4620 Regional Economics**

[3 credit hours]

Examination of regional income estimates and social accounts, regional multipliers, diverse location theories, supplemented with techniques of regional analysis.

**Prerequisites:** ECON 1200 with a minimum grade of D-

**ECON 4660 Public Finance Economics**

[3 credit hours]

An analysis of the government sector in the economy, government expenditures, taxation and borrowing and their effects on employment, price levels and growth.

**Prerequisites:** ECON 1200 with a minimum grade of D-

**Term Offered:** Spring

**ECON 4750 Health Economics**

[3 credit hours]

Economic analysis of health and health services. Topics currently include medical and allied manpower, hospitals, drugs and cost-benefit analysis of selected health programs.

**Prerequisites:** ECON 1200 (may be taken concurrently) with a minimum grade of D- and ECON 2810 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring

**ECON 4810 Econometrics Models And Methods I**

[3 credit hours]

An introduction to econometric methods and their use in quantitative analysis of economic theories. Diagnostics for problems typically encountered are detailed along with techniques for correcting these problems.

**Prerequisites:** MATH 2600 with a minimum grade of D- or ECON 2810 with a minimum grade of D- or PSY 2100 with a minimum grade of D- or SOC 3290 with a minimum grade of D- or GEPL 4420 with a minimum grade of D-

**Term Offered:** Fall

**ECON 4820 Econometrics Models And Methods II**

[3 credit hours]

An introduction to forecasting methods for economic time-series including Bayesian methods. Both theory and application of forecasting models and methods are covered.

**Prerequisites:** ECON 4810 with a minimum grade of D-

**Term Offered:** Spring

**ECON 4900 Undergraduate Research Experience**

[0 credit hours]

Undergraduate students will participate in directed research or scholarship activities with faculty mentors.

**Term Offered:** Spring, Summer, Fall

**ECON 4910 Research**

[1-4 credit hours]

**ECON 4920 Readings**

[1-4 credit hours]

**ECON 4940 Economics Internship**

[1-4 credit hours]

A prearranged work-study experiential learning course where students gain practical experience applying their economic knowledge with a specific firm, government agency, or nonprofit group. The course is variable credit from 1 to 4 credits. Each academic credit hour requires 40 hours of internship work, e.g., a 3 credit ECON 4940 course requires 120 hours. ECON 4940 will be graded as "credit/ no credit".

**Prerequisites:** ECON 1150 with a minimum grade of D- and ECON 1200 with a minimum grade of D- and ECON 2810 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ECON 4960 Senior Honors Thesis**

[1-4 credit hours]

## B.A. in Economics Undergraduate Research

The department of economics offers students the opportunity to gain research experience under faculty guidance. Research topics can be theoretical analysis, empirical analysis or both. Further options regarding the level of research are available, as the department offers junior- and senior-level courses - ECON 3900, ECON 3910, ECON 4910 and ECON 4920. A student interested in conducting research needs to register for one of those four courses with the consent of a faculty member who agrees to direct the student's research. Students may enroll in these courses more than once. If they do, however, they are encouraged to work with different faculty members to obtain more diverse research experiences. The department also has available undergraduate research grants from the Shapiro scholarship fund. Please see the department undergraduate advisor for more information.

- B.A. in Economics (p. 57)
- Economics -Concentration In Data Analytics In Economics, BA (p. 58)
- Economics- Concentration In Environmental Economics, BA (p. 58)

## B.A. IN ECONOMICS

The requirement of 30 hours in economics must include, from among the following, 15 hours of core courses and 15 hours of electives including at least one WAC course in Economics.

In the major area, 21 hours are to be taken under the regular grading system; the P/NC option is available for the remaining 9 hours and for all related courses.

Economics majors are required to take the following courses:

Code	Title	Hours
<b>Core Courses</b>		
ECON 1150	Principles Of Macroeconomics	3
or ECON 1155	Principles of Macroeconomics with Data Applications	
ECON 1200	Principles Of Microeconomics	3
ECON 2810	Introduction to Econometrics	3
ECON 3150	Intermediate Macroeconomic Theory	3
ECON 3200	Intermediate Micro-Economic Theory	3
<b>Economics Electives</b>		
Select 15 hours, chosen in consultation with the Economics Advisor		15
<b>Related Courses</b> <sup>1</sup>		
MATH 1850	Single Variable Calculus I (or equivalent) <sup>1</sup>	4-5
or MATH 1730	Calculus with Applications to Business and Finance	
MATH 2600	Introduction To Statistics (or equivalent)	3
or BUAD 2060	Business Statistics	
<b>Total Hours</b>		<b>37-38</b>

<sup>1</sup> Majors are encouraged to meet the mathematics and statistics requirements at an early stage of their course work. Students must meet those requirements by choosing one calculus and one statistics course. Majors are encouraged to meet the mathematics and statistics requirements at an early stage of their coursework. For the calculus requirement, students may be exempted from this prescribed requirement through the successful completion of ECON 4300. Students who earn credit for ECON 4300 as a major elective will have the calculus requirement in the related fields waived and they may complete the required 18 credits with any electives from the published course list in the degree audit.

### Economics -concentration in Data Analytics in Economics, BA

The requirement of 30 hours in economics must include, from among the following, 15 hours of core courses, 3 hours of electives including one WAC course in Economics, and 12 hours of concentration courses.

In the major area, 21 hours are to be taken under the regular grading system; the P/NC option is available for the remaining 9 hours and for all related courses.

Economics majors are required to take the following courses:

Code	Title	Hours
<b>Core Courses</b>		
ECON 1150	Principles Of Macroeconomics	3
ECON 1200	Principles Of Microeconomics	3
ECON 2810	Introduction to Econometrics	3
ECON 3150	Intermediate Macroeconomic Theory	3
ECON 3200	Intermediate Micro-Economic Theory	3
<b>Electives</b>		
Select 3 hours, chosen in consultation with the Economics Advisor		3
<b>Optional Concentration in Data Analytics in Economics</b>		

To earn the concentration in data analytics in economics, students must complete 12 credits from the following elective courses as part of their major:

DANN 2000	Proseminar in Data Analytics I	
DANN 4000	Proseminar in Data Analytics II	
ECON 3810	Applied Econometrics	
ECON 4810	Econometrics Models And Methods I	
ECON 4820	Econometrics Models And Methods II	

OR a substitution of one 3/4000 economics elective that includes a required data analysis component chosen in consultation with the economics undergraduate advisor.

### Related Courses

MATH 1850	Single Variable Calculus I (or equivalent)	
or MATH 1730	Calculus with Applications to Business and Finance	
MATH 2600	Introduction To Statistics (or equivalent)	
or BUAD 2060	Business Statistics	
<b>Total Hours</b>		<b>30</b>

<sup>1</sup> Majors are encouraged to meet the mathematics and statistics requirements at an early stage of their course work. Students must meet those requirements by choosing one calculus and one statistics course.

### Economics- concentration in Environmental Economics, BA

The requirement of 30 hours in economics must include, from among the following, 15 hours of core courses, 3 hours of electives including at least one WAC course in Economics, and 12 hours of concentration courses.

In the major area, 21 hours are to be taken under the regular grading system; the P/NC option is available for the remaining 9 hours and for all related courses.

Economics majors are required to take the following courses:

Code	Title	Hours
<b>Core Courses</b>		
ECON 1150	Principles Of Macroeconomics	3
ECON 1200	Principles Of Microeconomics	3
ECON 2810	Introduction to Econometrics	3
ECON 3150	Intermediate Macroeconomic Theory	3
ECON 3200	Intermediate Micro-Economic Theory	3
<b>Elective</b>		
Select 3 hours, chosen in consultation with the Economics Advisor.		3
<b>Optional Concentration in Environmental Economics</b>		
To earn the concentration in environmental economics, students must complete four of the following elective courses as part of their major:		12
ECON 3240	Environmental Economics	
or ECON 3270	Natural Resource Economics - WAC	
ECON 3300	BENEFIT-COST ANALYSIS	

ECON 4240/5240	Applied Environmental Economics (OR alternative economics course at 3000 level or above chosen in consultation with the undergraduate economics advisor)	
ECON 4280/5280	Energy Economics (OR alternative economics course at 3000 level or above chosen in consultation with the undergraduate economics advisor.)	
<b>Related Courses</b> <sup>1</sup>		
MATH 1850	Single Variable Calculus I (or equivalent) or MATH 17: Calculus with Applications to Business and Finance	
MATH 2600	Introduction To Statistics (or equivalent) or BUAD 2060 Business Statistics	
<b>Total Hours</b>		<b>30</b>

<sup>1</sup> Majors are encouraged to meet the mathematics and statistics requirements at an early stage of their course work. Students must meet those requirements by choosing one calculus and one statistics course.

- B.A. in Economics (p. 57)
- Economics -Concentration In Data Analytics In Economics, BA (p. 58)
- Economics- Concentration In Environmental Economics, BA

### B.A. IN ECONOMICS

Students accepted in to the BA in Economics should be academically prepared to be placed in MATH 1730 or MATH 1850. Students placing into lower MATH levels - MATH 1180, MATH 1200 or MATH 1340, are able to replace elective credits with these courses and still complete their degree within 120 hours.

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

First Term		Hours
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
ECON 1150	Principles Of Macroeconomics	3
or ECON 1155	or Principles of Macroeconomics with Data Applications	
MATH 1730	Calculus with Applications to Business and Finance <sup>1</sup>	5
Elementary Foreign Language I		4
<b>Hours</b>		<b>16</b>
<b>Second Term</b>		
ECON 1200	Principles Of Microeconomics	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
Select one of the following: (Related requirement)		3
MATH 2600	Introduction To Statistics	
BUAD 2060	Business Statistics	

HIST 1010-HIST 1200 Arts/Humanities Core (History)		3
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
ECON 2810	Introduction to Econometrics	3
ECON 3200	Intermediate Micro-Economic Theory	3
Social Sciences Core		3
Intermediate Foreign Language I or approved culture course		3
Arts/Humanities Core (Fine Art)		3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
ECON 3150	Intermediate Macroeconomic Theory	3
ECON Major Elective (WAC)		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
Intermediate Foreign Language II or approved culture course		3
Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>
<b>Fifth Term</b>		
ECON Major Elective 3000-4000 level		3
Natural Sciences Core		3
Non-US Diversity		3
ENGL 2710-ENGL 2800 Arts/Humanities Core (English Lit)		3
Related or minor course		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
ECON Major Elective 3000-4000 level		3
Diversity of US		3
Related or minor course (WAC)		3
Related or minor course		6
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
ECON Major Elective 3000-4000 level		3
Related course		3
Elective		9
<b>Hours</b>		<b>15</b>
<b>Eighth Term</b>		
ECON Major Elective 3000-4000 level		3
Elective		9
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> For the calculus requirement, students may be exempted from this prescribed requirement through the successful completion of ECON 4300. Students who earn credit for ECON 4300 as a major elective will have the calculus requirement in the related fields waived and they may complete the required 18 credits with any electives from the published course list in the degree audit.



## Economics -concentration in Data Analytics in Economics, BA

Students accepted in to the BA in Economics should be academically prepared to be placed in MATH 1730 or MATH 1850. Students placing into lower MATH levels - MATH 1180, MATH 1200 or MATH 1340, are able to replace elective credits with these courses and still complete their degree within 120 hours.

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

First Term		Hours
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
ECON 1150	Principles Of Macroeconomics	3
MATH 1730	Calculus with Applications to Business and Finance	5
Elementary Foreign Language I		4
<b>Hours</b>		<b>16</b>
Second Term		Hours
ECON 1200	Principles Of Microeconomics	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
Select one of the following: (Related requirement)		3
MATH 2600	Introduction To Statistics	
BUAD 2060	Business Statistics	
HIST 1010-HIST 1200 Arts/Humanities Core (History)		3
<b>Hours</b>		<b>16</b>
Third Term		Hours
ECON 2810	Introduction to Econometrics	3
ECON 3200	Intermediate Micro-Economic Theory	3
Social Sciences Core		3
Intermediate Foreign Language I or approved culture course		3
Arts/Humanities Core (Fine Art)		3
<b>Hours</b>		<b>15</b>
Fourth Term		Hours
ECON 3150	Intermediate Macroeconomic Theory	3
ECON Major Elective (WAC)		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
Intermediate Foreign Language II or approved culture course		3
Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>
Fifth Term		Hours
DANN 2000	Proseminar in Data Analytics I	1
Natural Sciences Core		3
Non-US Diversity		3
ENGL 2710-ENGL 2800 Arts/Humanities Core (English Lit)		3
Related or minor course		3
<b>Hours</b>		<b>13</b>

### Sixth Term

ECON 3810	Applied Econometrics	3
Diversity of US		3
Related or minor course (WAC)		3
Related or minor course		6
<b>Hours</b>		<b>15</b>

### Seventh Term

ECON 4810	Econometrics Models And Methods I	3
Related course		3
Elective		9
<b>Hours</b>		<b>15</b>

### Eighth Term

ECON 4820	Econometrics Models And Methods II	3
DANN 4000	Proseminar in Data Analytics II	2
Elective		9
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>120</b>

## Economics- concentration in Environmental Economics, BA

Students accepted in to the BA in Economics should be academically prepared to be placed in MATH 1730 or MATH 1850. Students placing into lower MATH levels - MATH 1180, MATH 1200 or MATH 1340, are able to replace elective credits with these courses and still complete their degree within 120 hours.

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

First Term		Hours
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
ECON 1150	Principles Of Macroeconomics	3
MATH 1730	Calculus with Applications to Business and Finance	5
Elementary Foreign Language I		4
<b>Hours</b>		<b>16</b>
Second Term		Hours
ECON 1200	Principles Of Microeconomics	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
Select one of the following: (Related requirement)		3
MATH 2600	Introduction To Statistics	
BUAD 2060	Business Statistics	
HIST 1010-HIST 1200 Arts/Humanities Core (History)		3
<b>Hours</b>		<b>16</b>
Third Term		Hours
ECON 2810	Introduction to Econometrics	3
ECON 3200	Intermediate Micro-Economic Theory	3

Social Sciences Core	3
Intermediate Foreign Language I or approved culture course	3
Arts/Humanities Core (Fine Art)	3

**Hours 15**

**Fourth Term**

ECON 3150 Intermediate Macroeconomic Theory	3
ECON Major Elective (WAC)	3
Natural Sciences Core	3
Natural Sciences Core (Lab)	1
Intermediate Foreign Language II or approved culture course	3
Arts/Humanities Core	3

**Hours 16**

**Fifth Term**

ECON 3240 Environmental Economics or ECON 3270 or Natural Resource Economics - WAC	3
Natural Sciences Core	3
Non-US Diversity	3
ENGL 2710-ENGL 2800 Arts/Humanities Core (English Lit)	3
Related or minor course	3

**Hours 15**

**Sixth Term**

ECON 3300 BENEFIT-COST ANALYSIS	3
Diversity of US	3
Related or minor course (WAC)	3
Related or minor course	6

**Hours 15**

**Seventh Term**

ECON 4240 Applied Environmental Economics or ECON 5240 or Applied Environmental Economics	3
Related course	3
Elective	9

**Hours 15**

**Eighth Term**

ECON 4280 Energy Economics or ECON 5280 or Energy Economics	3
Elective	9

**Hours 12**

**Total Hours 120**

- PLO 1: Describe opportunity cost and its importance in decision making, marginal analysis, and the importance of understanding economic incentives.
- PLO 2: Explain the basic models of consumer and firm theory, such as the demand-supply model.
- PLO 3: Explain economic efficiency and the mechanism by which competitive markets lead to an efficient allocation of scarce resources.
- PLO 4: Recognize when markets fail to achieve efficiency and discuss the potential for efficiency-improving government intervention into inefficient markets.

- PLO 5: Explain the distinction between real and nominal values, and why this matters for understanding consumer and firm behavior as well as the national economy.
- PLO 6: Predict the impact of government fiscal and monetary policy - use of deficits, changes in the money supply, etc. - on overall economic performance.
- PLO 7: Explain and discuss the determinants of economic growth.
- PLO 8: Discuss the costs and causes of unemployment, and assess public policies to ameliorate it.
- PLO 9: Assess the tradeoff between unemployment and inflation.
- PLO 10: Apply economic models to analyze issues related to their employer's objectives, in either a profit maximizing business, or equality goals of a non-profit agency, or policy objectives of a government agency.
- PLO 11: Use various computer applications to perform statistical analysis and interpret the results in an economically meaningful way.
- PLO 12: Evaluate how economic concepts are used in economic analyses published in the popular media (newspapers, internet sources, etc.)

## Advanced Economics Certificate

**Advanced Economics Certificate, 10 credits (3 courses); prereq: acceptance into the Early Admission Program for Econ's One Year Master's Program:**

Code	Title	Hours
ECON 5150	Advanced Macroeconomic Theory	4
or ECON 5200	Advanced Microeconomic Theory	
Two elective ECON courses from the following list. One at the 5000 level (3 or 4 credits) and one at the 4000 level (3 credits):		
ECON 4620	Regional Economics	
or ECON 5620	Regional Economics	
ECON 4050	Population Economics	
or ECON 5050	Population Economics	
ECON 4750	Health Economics	
or ECON 5750	Health Economics	
ECON 4250	Labor Economics	
or ECON 5250	Labor Economics	
ECON 4260	Behavioral Economics	
or ECON 6260	Behavioral Economics	
ECON 4280	Energy Economics	
or ECON 5280	Energy Economics	
ECON 4240	Applied Environmental Economics	
or ECON 5240	Applied Environmental Economics	
ECON 4660	Public Finance Economics	
or ECON 5660	Public Finance Economics	
ECON 4120	Monetary Theory	
or ECON 5120	Monetary Theory	
ECON 4130	Monetary And Fiscal Policy	
or ECON 5130	Monetary And Fiscal Policy	
ECON 4300	Mathematical Economics	
or ECON 5300	Mathematical Economics	



ECON 4510 International Economics I  
or ECON 551 International Economics I  
ECON 4550 Economic Development  
or ECON 5550

- PLO 1. Analytic and quantitative abilities. Students will analyze economic models using advanced quantitative tools such as regression analysis.
- PLO 2. Application abilities. Students will apply economic theory to a range of economic problems demonstrating causation.
- PLO 3. Communication skills. Students written work and/or oral presentations will demonstrate the ability to interpret and summarize ideas effectively in terms of content, clarity, syntax, and organization of information, particularly for quantitative results.

## Advanced Quantitative Economics Certificate

**Advanced Quantitative Economics Certificate, 9 credits (3 courses)**

Students in the Early Admission master's program can take up to 2 of these courses at the 5000/6000 level.

Code	Title	Hours
Required: Choose two from the following; if all three taken, one will count as the required elective below:		
ECON 4300 or ECON 530	Mathematical Economics Mathematical Economics	6
ECON 4810 or ECON 5810	Econometrics Models And Methods I Econometrics Models And Methods I	
ECON 4820 or ECON 582	Econometrics Models And Methods II Econometrics Models And Methods II	
Select one elective ECON course from the following; all include data analysis applications:		
ECON 4050 or ECON 505	Population Economics Population Economics	3
ECON 4750 or ECON 5750	Health Economics Health Economics	
ECON 4250 or ECON 525	Labor Economics Labor Economics	
ECON 4260 or ECON 6260	Behavioral Economics Behavioral Economics	
<b>Total Hours</b>		<b>9</b>

- PLO 1. Identification abilities. Students will demonstrate the ability to identify and describe economic phenomena using economic terms and concepts from the provided information and data.
- PLO 2. Analytic and quantitative abilities. Students will demonstrate the ability to analyze economic models and its implications using graphical and quantitative tools. Students will demonstrate the ability to analyze economic data. In particular:
- PLO 3. Application abilities. Students will demonstrate the ability to apply economic theory to a range of economic problems.

- PLO 4. Communication skills. Student written work and/or oral presentations will demonstrate the ability to convey, interpret, and summarize ideas effectively in terms of content, clarity, syntax, and organization of information.

## Environmental Economics Certificate

**Environmental Economics Certificate, 9 credits (3 courses):**

Code	Title	Hours
Select two of the following (if all 3 taken then 3rd counts as one of the electives below):		
ECON 3240 or ECON 327	Environmental Economics Natural Resource Economics - WAC	6
ECON 3300	BENEFIT-COST ANALYSIS (WAC)	
Select one of the following:		
ECON 4280	Energy Economics	3
ECON 3260	The Economics of Climate Change	
ECON 4240	Applied Environmental Economics	
<b>Total Hours</b>		<b>9</b>

- PLO 1: Identification abilities. Students will identify and describe environmental economic phenomena using economic terms and concepts from the provided information and data.
- PLO 2: Analytic and quantitative abilities. Students will analyze environmental economic models using graphical and quantitative tools.
- PLO 3: Application abilities. Students will apply economic theory to a range of environmental economic problems.
- PLO 4: Communication skills. Students written work and/or oral presentations will demonstrate the ability to interpret and summarize ideas effectively in terms of content, clarity, syntax, and organization of information, particularly for environmental economic issues.

## Public Economics Certificate

**Public Economics Certificate, 9 credits (3 courses):**

Code	Title	Hours
ECON 4660	Public Finance Economics	3
ECON 3300	BENEFIT-COST ANALYSIS (WAC)	3
Select one of the following:		
ECON 3050	Economics Of Gender	3
ECON 3080	Economics Of Crime (WAC)	
PSC 3410	Principles of Public Policy	
ECON 3600	Urban Economics	
ECON 4620	Regional Economics	
ECON 4050	Population Economics	
ECON 4750	Health Economics	
ECON 4250	Labor Economics	
ECON 4260	Behavioral Economics	
<b>Total Hours</b>		<b>9</b>

- PLO 1: Identification abilities. Students will identify and describe public policy economic phenomena using economic terms and concepts from the provided information and data.
- PLO 2: Analytic and quantitative abilities. Students will analyze public policy economic models using graphical and quantitative tools.
- PLO 3: Application abilities. Students will apply economic theory to a range of public policy economic topics.
- PLO 4: Communication skills. Students written work and/or oral presentations will demonstrate the ability to interpret and summarize ideas effectively in terms of content, clarity, syntax, and organization of information, particularly for public policy economic proposals.

## Minor in Economics

Students electing to minor in economics must complete a minimum of 18 hours of course work. The 9 hours of required course work listed below for a minor in economics provide the theoretical and quantitative skills essential for a fundamental understanding of the discipline of economics and a rigorous background for an in-depth appreciation of upper division courses. Each program of study for a minor must receive the prior approval of the departmental Adviser. A minimum GPA of 2.0 must be achieved in courses within the minor.

Code	Title	Hours
<b>Required Courses</b>		
ECON 1150	Principles Of Macroeconomics	3
ECON 1200	Principles Of Microeconomics	3
Select one of the following: 3		
ECON 3150	Intermediate Macroeconomic Theory	
ECON 3200	Intermediate Micro-Economic Theory	
or another macro or micro course chosen with the consent of the undergraduate Adviser		
<b>Minor Electives</b>		
Select an additional nine hours from course work in economics at the 3000 to 4000 levels, chosen in consultation with the undergraduate advisor <sup>1</sup>		9
<b>Total Hours</b>		<b>18</b>

<sup>1</sup> No more than three hours of ECON 4910 or ECON 4920 may be included in the nine hours of additional course work.

## Minor in Environmental Economics

**Environmental Economics Minor, 18 credits (6 courses):**

Code	Title	Hours
ECON 1155	Principles of Macroeconomics with Data Applications	3
or ECON 1150 Principles Of Macroeconomics		
ECON 1200	Principles Of Microeconomics	3
Select two of the following (if all 3 taken then 3rd counts as one of the electives below): 6		
ECON 3240	Environmental Economics	
or ECON 327 Natural Resource Economics - WAC		

ECON 3300	BENEFIT-COST ANALYSIS (WAC)	
Select two of the following: 6		
ECON 4280	Energy Economics	
ECON 3260	The Economics of Climate Change	
ECON 4240	Applied Environmental Economics	
ECON 3200	Intermediate Micro-Economic Theory	
ECON 2810	Introduction to Econometrics	
ECON 4660	Public Finance Economics	
PSC 4340	Environmental Policy	
<b>Total Hours</b>		<b>18</b>

- PLO 1: Identification abilities. Students will demonstrate the ability to identify and describe economic phenomena using economic terms and concepts from the provided information and data.
- PLO 2: Analytic and quantitative abilities. Students will demonstrate the ability to analyze economic models and its implications using graphical and quantitative tools. Students will demonstrate the ability to analyze economic data. In particular:
- PLO 3: Application abilities. Students will demonstrate the ability to apply economic theory to a range of economic problems.
- PLO 4: Communication skills. Student written work and/or oral presentations will demonstrate the ability to convey, interpret, and summarize ideas effectively in terms of content, clarity, syntax, and organization of information.

## Minor in Public Economics

**Public Economics Minor, 18 credits (6 courses):**

Code	Title	Hours
ECON 1155	Principles of Macroeconomics with Data Applications	3
or ECON 1150 Principles Of Macroeconomics		
ECON 1200	Principles Of Microeconomics	3
ECON 4660	Public Finance Economics	3
ECON 3300	BENEFIT-COST ANALYSIS (WAC)	3
Select two of the following: 6		
ECON 3050	Economics Of Gender	
ECON 3080	Economics Of Crime	
PSC 3410	Principles of Public Policy	
ECON 3600	Urban Economics	
ECON 4620	Regional Economics	
ECON 4050	Population Economics	
ECON 4750	Health Economics	
ECON 4260	Behavioral Economics	
ECON 4250	Labor Economics	
ECON 3200	Intermediate Micro-Economic Theory	
ECON 2810	Introduction to Econometrics	
<b>Total Hours</b>		<b>18</b>

- PLO 1: Identification abilities. Students will demonstrate the ability to identify and describe economic phenomena using economic terms and concepts from the provided information and data.

- PLO 2: Analytic and quantitative abilities. Students will demonstrate the ability to analyze economic models and its implications using graphical and quantitative tools. Students will demonstrate the ability to analyze economic data. In particular.
- PLO 3: Application abilities. Students will demonstrate the ability to apply economic theory to a range of economic problems.
- PLO 4: Communication skills. Student written work and/or oral presentations will demonstrate the ability to convey, interpret, and summarize ideas effectively in terms of content, clarity, syntax, and organization of information.

## Department of English Language and Literature

Andrew Mattison, Chair

Benjamin Stroud, Associate Chair, Director of Undergraduate Studies, Advisor

Kimberly Mack, Honors Advisor

Anthony Edgington, Director of Composition

Melinda Reichelt, Director of ESL Writing

### Advanced Placement Program

Refer to the University of Toledo's Registrar page at [https://www.utoledo.edu/offices/registrar/student\\_records/advan\\_credits.html](https://www.utoledo.edu/offices/registrar/student_records/advan_credits.html) for specific information on minimum scores and credits awarded for Advanced Placement examinations administered by the College Board Advanced Placement Program.

### Degrees Offered

- B.A. in English (p. 69)
- Minor in English (p. 73)

An English honors candidate must be a junior or senior, have completed 15 hours of 3000-4000 level English courses, and have a GPA of 3.6 or higher. Any student interested in pursuing departmental Honors must discuss the possibility of departmental Honors with the English Honors advisor prior to enrolling in ENGL 4900 and ENGL 4960. In order to receive the designation of honors, the student must fulfill the departmental Honors requirements in addition to the hours required for the major, and receive an A on the thesis. Students do not have to be enrolled in the College Honors program to pursue departmental Honors.

#### ENGL 1010 College Composition 1 Co-Requisite

[3 credit hours]

Explanatory and persuasive writing in both personal and public genres; instruction and practice in generating, focusing, developing, researching and presenting ideas in ways consistent with one's subject, purposes and intended audiences.

**Term Offered:** Spring, Summer, Fall

Core English Composition, OT36 English Composition

#### ENGL 1020 Writing And Grammar For Students Of English As A Second Language

[3 credit hours]

Course work focuses on the major grammatical patterns of academic writing in English as well as accuracy in the mechanics of academic writing. The primary emphasis is on these features in the context of the students' own written work. Eligibility by placement exam only. A maximum of 3 semester hours in ENGL 1020 and 1120 may be counted toward fulfilling the 124 hour requirement for graduation.

**Prerequisites:** English Placement with a score of 1020

**Term Offered:** Spring, Fall

#### ENGL 1110 College Composition I

[3 credit hours]

Explanatory and persuasive writing in both personal and public genres; instruction and practice in generating, focusing, developing, researching and presenting ideas in ways consistent with one's subject, purposes and intended audience. ESL students must have completed ENGL 1020 with grade of Pass. From Composition I with Workshop, Composition I and Composition II, no more than 6 hours apply toward graduation.

**Prerequisites:** ACT Composite with a score of 18 or Accuplacer Sentence Skills Engl with a score of 88 or Accuplacer NG Writing with a score of 263 or TOTAL SCORE with a score of 940 or High School GPA with a score of 2.75

**Term Offered:** Spring, Summer, Fall

Core English Composition, OT36 English Composition

#### ENGL 1130 College Composition II: Academic Disciplines And Discourse

[3 credit hours]

Reading and analyzing documents from specific disciplines to synthesize results from multiple perspectives and produce disciplinarily appropriate writing from your research. A significant focus on academic argument and advanced research writing skills included. Discipline-specific sections offered. Web enhanced. Critical reading, research papers required.

**Prerequisites:** ENGL 1110 with a minimum grade of D- or ENGL 1010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core English Composition, OT36 English Composition

#### ENGL 2010 Advanced Composition

[3 credit hours]

Instruction and practice in writing expository and persuasive prose for a variety of audiences with particular attention to the effect of content and style upon readers. Introduction to advanced methods for critical thinking, argumentation, and research writing. Writing for discipline-specific and/or public audiences encouraged.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 1210 with a minimum grade of D- or ENGL 1220 with a minimum grade of D- or ENGL 1230 with a minimum grade of D-

**Term Offered:** Spring, Fall



**ENGL 2710 Reading Fiction**

[3 credit hours]

Exploration of various kinds of fiction with goals of literary appreciation and analytical insight. (not for major credit)

**Prerequisites:** ENGL 1100 with a minimum grade of D- or ENGL 1110 with a minimum grade of D- or HON 1010 with a minimum grade of D- or ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or HON 1020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

**ENGL 2720 Reading Drama**

[3 credit hours]

Exploration of various kinds of drama with goals of literary appreciation and analytical insight. (not for major credit)

**Prerequisites:** ENGL 1100 with a minimum grade of D- or ENGL 1110 with a minimum grade of D- or HON 1010 with a minimum grade of D- or ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or HON 1020 with a minimum grade of D-

**Term Offered:** Spring, Fall

Core Arts & Humanities, OT36 Arts and Humanities

**ENGL 2730 Reading Poetry**

[3 credit hours]

Exploration of various kinds of poetry with goals of literary appreciation and analytical insight. (not for major credit)

**Prerequisites:** ENGL 1100 with a minimum grade of D- or ENGL 1110 with a minimum grade of D- or HON 1010 with a minimum grade of D- or ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or HON 1020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities

**ENGL 2770 Ethnic American Literature**

[3 credit hours]

Study of US Ethnic American Literature. The literature of a particular group may be specified; consult Time Schedules for specific topic.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, Multicultural US Diversity

**ENGL 2800 Writing About Literature**

[3 credit hours]

A writing-intensive (WAC) course introducing the process of writing various types of papers and analyzing literary works. Special emphasis on discovering a topic and on revision and structure in expository writing.

**Prerequisites:** ENGL 1100 with a minimum grade of D- or ENGL 1110 with a minimum grade of D- or HON 1010 with a minimum grade of D- or ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or HON 1020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities

**ENGL 2950 Science And Technical Report Writing**

[3 credit hours]

Instruction and practice in multiple forms of technical and scientific communication for varied scientific and technical audiences. Emphasis on writing informational and analytical reports and documents in medical, scientific or technical fields. Additional focus on writing for multiple audiences and in different mediums, including online mediums.

**Prerequisites:** ENGL 1010 with a minimum grade of D- or ENGL 1110 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core English Composition, OT36 English Composition

**ENGL 2960 Professional and Business Writing**

[3 credit hours]

Instruction and practice in multiple forms of professional and business writing within an organizational context. Emphasis on the analytical report based on research. Additional focus on writing for multiple audiences and in different mediums, including online mediums.

**Prerequisites:** ENGL 1110 with a minimum grade of D- or ENGL 1010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core English Composition, OT36 English Composition

**ENGL 3010 Creative Writing**

[3 credit hours]

A basic introduction to creative writing. Students write poems, stories or creative nonfiction which serve as the basis for classroom discussion and for conferences with instructor.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 1210 with a minimum grade of D- or ENGL 1220 with a minimum grade of D- or ENGL 1230 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ENGL 3020 The Writing Career: Readings and Professionalization**

[3 credit hours]

Through the analysis of a diverse range of literary genres, this course will teach writers how to develop their own material by studying as models the formal strategies of other writers, including but not limited to language, structure, narrator or speaker, character, dialogue, plot, tone, and the many other elements of literature. This course will also offer a unit on professionalization.

**Prerequisites:** ENGL 3010 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ENGL 3040 Playwriting**

[3 credit hours]

Creative writing for the theatre analyzing traditional and contemporary structure and style.

**Prerequisites:** ENGL 2720 with a minimum grade of D- or THR 2299 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ENGL 3050 Persuasive Writing**

[3 credit hours]

Analysis of and practice in the techniques of persuasive writing. Emphasis varies from writing about legal issues to writing about issues of public controversy.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 1210 with a minimum grade of D- or ENGL 1220 with a minimum grade of D- or ENGL 1230 with a minimum grade of D-

**Term Offered:** Spring, Fall**ENGL 3060 Screenwriting**

[3 credit hours]

This course involves practical analysis of screenplays, emphasizing story structure and characterization. Students plan, write and refine story lines before writing actual scripts.

**Term Offered:** Spring, Summer, Fall**ENGL 3080 The Art And Process Of The Book**

[3 credit hours]

This course examines all aspects of the printed book - from scrolls to Gutenberg to contemporary publishing - as students work towards designing, printing and binding a finely printed edition.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 1210 with a minimum grade of D- or ENGL 1220 with a minimum grade of D- or ENGL 1230 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**ENGL 3150 Linguistic Principles**

[3 credit hours]

An introduction to modern linguistic theories about the nature and structure of language with emphasis on English.

**Term Offered:** Spring, Fall**ENGL 3360 Introduction to Poetry and Poetics**

[3 credit hours]

This course serves as an introduction to the techniques and ideas that underlie poetry. It will feature a broad array of poems from multiple times and places, major statements on poetics, and discussion of how poets conceive of what poetry is and how poetics affects reading.

**ENGL 3600 American Literary Traditions**

[3 credit hours]

Introduction to literary history, and the terminology and techniques of the historical study of American literature, intended as preparation for the English major. Texts may include works from the colonial period to the 21st-century.

**Term Offered:** Spring, Summer, Fall**ENGL 3610 British Literary Traditions**

[3 credit hours]

Introduction to literary history, and the terminology and techniques of the historical study of British literature, intended as preparation for the English major. Texts may include works from the Medieval period to the 21st-century.

**Term Offered:** Spring, Fall**ENGL 3650 Science Fiction And Fantasy Literature**

[3 credit hours]

This course examines literary works of science fiction and fantasy, and related scholarship, from a variety of perspectives. Readings are selected from prominent writers in both genres.

**Term Offered:** Spring, Summer, Fall**ENGL 3660 Latinx Literature in the U.S.**

[3 credit hours]

Introduction to Latinx writers, literatures, and cultures in the United States from the 1960s to the present moment.

**Term Offered:** Spring, Fall**ENGL 3670 Literature of Diverse and Nonwhite Communities**

[3 credit hours]

Introduction to study of non-white authors representing formerly colonized countries or other nonwestern and diasporic communities. May include African-American, Caribbean, Central and South Asian, or African literature. Will include texts written in English and/or translated from other languages. Intended as preparation for the English major.

**Term Offered:** Spring, Fall**ENGL 3710 Literature Of The Old Testament**

[3 credit hours]

A study of the Old Testament from the literary point of view, including ancient poetry, history, romance, short story, hymn, prophecy, and wisdom writing.

**Term Offered:** Spring, Summer, Fall**ENGL 3730 Folklore**

[3 credit hours]

A survey of the field of folklore with an emphasis on folk narrative, folk music and material culture in America.

**Term Offered:** Spring, Fall**ENGL 3740 Folklore And Literature**

[3 credit hours]

A study in the relationship of oral and written literature. Focus is on the literary uses of folk forms and use of tradition by specific writers and schools.

**Term Offered:** Fall**ENGL 3750 Women And Literature - Writing Across the Curriculum**

[3 credit hours]

Examines literary works in light of major issues raised by feminist criticism. Specific emphasis varies. Recommended ENGL 2700 or 3790

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**ENGL 3760 European Literature To The Renaissance**

[3 credit hours]

Offered as Writing Across the Curriculum (WAC) course. A selective study of works of European literature (in translation) from the Ancient Greeks and Romans and Medieval and Renaissance European cultures other than Britain. Particular texts vary, but may include a variety of genres and authors across the periods. Recommended: ENGL 3600, 3610, or 3790.

**Term Offered:** Fall**ENGL 3770 World Literature And Cultures**

[3 credit hours]

This course examines texts and cultures from around the world (and in particular the non-western world). The genres examined include autobiography, poetry, short fiction, novels, plays and histories.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**ENGL 3790 Foundations Of Literary Study**

[3 credit hours]

Writing Across the Curriculum Course. An overview and introduction to the discipline of literary study.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 1210 with a minimum grade of D- or ENGL 1220 with a minimum grade of D- or ENGL 1230 with a minimum grade of D-

**Term Offered:** Spring, Fall**ENGL 3810 Shakespeare I**

[3 credit hours]

An introduction to the study and interpretation of Shakespeare's works in literary, theatrical, and historical context, with a focus on his drama.

**Term Offered:** Spring, Fall**ENGL 3850 LGBTQ Literature**

[3 credit hours]

Study of literature by LGBTQ people. Individual sections may focus specifically on one geographic region or historical period.

**Term Offered:** Spring, Fall**ENGL 3980 Special Topics in Literature**

[3 credit hours]

Group study of a period, genre, author, or special literary topic. May be repeated with change of specialty number. Topics will be announced in the semester Time Schedules.

**Term Offered:** Spring, Fall**ENGL 4030 Writing Workshop In Nonfictional Prose**

[3 credit hours]

Directed study of nonfiction genres, rhetorical forms and elements of style; extensive practice in the writing and critical evaluation of prose.

**Prerequisites:** ENGL 2010 with a minimum grade of D- or ENGL 3010 with a minimum grade of D-

**Term Offered:** Spring, Fall**ENGL 4070 Writing Workshop In Poetry**

[3 credit hours]

An advanced workshop in writing poetry emphasizing a wider range of readings, craft and technique.

**Prerequisites:** ENGL 3010 with a minimum grade of D-**Term Offered:** Spring, Fall**ENGL 4080 Writing Workshop In Fiction**

[3 credit hours]

An advanced workshop emphasizing a wider range of readings, craft and technique. May be repeated once for credit.

**Prerequisites:** ENGL 3010 with a minimum grade of D-**Term Offered:** Spring, Fall**ENGL 4090 Current Writing Theory**

[3 credit hours]

A study of current theory and research connecting reading, critical thinking, and writing with applications of theory to students' writing practice.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 1210 with a minimum grade of D- or ENGL 1220 with a minimum grade of D- or ENGL 1230 with a minimum grade of D-

**Term Offered:** Spring, Fall**ENGL 4100 The History Of English**

[3 credit hours]

Study of the changes that have taken place in the English language from the earliest days to the present.

**Term Offered:** Spring, Summer, Fall**ENGL 4210 Issues in ESL Writing**

[3 credit hours]

Course content includes key concepts in ESL writing instruction and research; characteristics of second language writers and their texts; curricular options; and responding to and assessing ESL writing.

**Term Offered:** Spring, Fall**ENGL 4280 American Fiction: 20th and 21st Century**

[3 credit hours]

Major developments in the 20th-century and 21st Century American short story and novel. Recommended: ENGL 3600 or 3790.

**Term Offered:** Spring, Fall**ENGL 4300 Medieval and Early Tudor Drama**

[3 credit hours]

A study of drama and performance from the British Isles and relevant continental traditions in the late Middle Ages through the early 16th century, in their cultural, material, and performance contexts. Course may include performance traditions and texts such as monastic and liturgical drama, civic Creation-to-Doomsday play cycles, manuscript collections of drama, morality plays, passion plays, miracle and saints' plays, folk plays, courtly interludes and mummings, and royal entries, as well as modern revivals.

**ENGL 4310 British Drama To 1642**

[3 credit hours]

A study of drama in England from the opening of the first public theaters to their closing in 1642. May include plays produced for public performance and other dramatic works. Emphasis will be on playwrights other than Shakespeare. Recommended: ENGL 3610, 3790, or 3810

**ENGL 4400 British Literature: The Medieval Period**

[3 credit hours]

The study of British literature before 1500, often in translation. Topics vary between early medieval texts and culture (8th to 11th centuries), late medieval texts and culture (12th to 15th centuries, excluding Chaucer), and specific themes or genres across sub-periods. Check departmental course descriptions for the specific topic in a given semester. May be repeated for credit if topics are different. Recommended: ENGL 3610, 3810, or 3790.

**Term Offered:** Spring, Fall**ENGL 4420 Renaissance Literature**

[3 credit hours]

Study of major authors, genres, and ideas of the English Renaissance. Individual sections may focus on more specific topics.

**Term Offered:** Spring, Fall**ENGL 4440 Early 17th Century English Literature**

[3 credit hours]

Poetry and prose from 1603 to 1660. Recommended: ENGL 3610, 3790, or 3810.

**Term Offered:** Spring, Fall**ENGL 4460 British Literature: Restoration And 18th Century**

[3 credit hours]

Drama, poetry, and prose of the Restoration, neo-classical and pre-Romantic periods. Recommended: ENGL 3610, 3790, or 3810.

**Term Offered:** Spring**ENGL 4500 British Literature: The Romantic Period**

[3 credit hours]

Study of major authors, genres, and ideas of the Romantic period: approximately 1789 to 1837.

**Term Offered:** Spring, Fall**ENGL 4520 British Literature: The Victorian Period**

[3 credit hours]

Study of major authors, genres, and ideas of the Victorian period: approximately 1837 to 1901.

**Term Offered:** Spring, Fall**ENGL 4540 British Literature: The 20th and 21st Centuries**

[3 credit hours]

Study of major authors, genres, and ideas of 20th-century and 21st-century British literature.

**ENGL 4550 Literature of the British Empire, Beginnings to 1850**

[3 credit hours]

Study of the development of race, empire, and colonialism through literary texts written in (or translated into) English from the late-thirteenth century to the abolition of the British slave trade in the early-nineteenth.

**Term Offered:** Spring, Fall**ENGL 4560 Literature of the British Empire 1850 to the Present**

[3 credit hours]

Studies in texts from Britain and its former colonies. Genres may include the novel, travel writing, memoir, and film.

**Term Offered:** Spring, Fall**ENGL 4600 Early American Literature**

[3 credit hours]

The poetry and theology of the New England Puritans, especially Bradstreet and Taylor, the literature of the American Enlightenment, the beginnings of American Romanticism in Bryant and Cooper. Recommended: ENGL 3600 or 3790.

**Term Offered:** Fall**ENGL 4610 Nineteenth-Century Latinx Literature**

[3 credit hours]

Cultural production of Latinx peoples in the nineteenth century United States. Topics to include the social and cultural impact of colonization in the Southwestern part of the U.S and the Atlantic world and identity formation among Hispanophone Black, Indigenous, and people of color (BIPOC).

**Term Offered:** Spring, Fall**ENGL 4620 American Romanticism**

[3 credit hours]

Literature of the United States from the early nineteenth century through about 1865, with concentration on the literary production between 1840 and 1865. Recommended: ENGL 3600 or 3790.

**Term Offered:** Spring, Fall**ENGL 4630 American Literary Realism**

[3 credit hours]

American literature from the post-Civil War period to the early 20th Century. Recommended: ENGL 3600 or 3790.

**Term Offered:** Fall**ENGL 4640 Early 20th Century American Poetry**

[3 credit hours]

Study of American poetry from 1900 to 1950. Recommended: ENGL 3600 or 3790.

**Term Offered:** Spring, Fall**ENGL 4650 African American Writers Before The 20th Century**

[3 credit hours]

A survey of African-American prose, poetry, drama and fiction from 1760 to 1915. Recommended: ENGL 2800, or 3790.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**ENGL 4660 African American Literature In The 20th and 21st Century**

[3 credit hours]

A course focused on 20th and 21st century African American poetry, fiction, nonfiction, and drama.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**ENGL 4670 Asian American Literature**

[3 credit hours]

A study of the diverse traditions and key debates in Asian American and Transpacific literature.

**Term Offered:** Spring, Fall

**ENGL 4680 American Literature Since World War II**

[3 credit hours]

An exploration of American literature from 1945 to the present day with a focus on both poetry and fiction, and possibly drama and other literary forms. Recommended: ENGL 3600 or 3790.

**Term Offered:** Spring, Fall

**ENGL 4690 Native American Literature And Culture**

[3 credit hours]

Study of texts by and about Native Americans, including the oral traditions of storytelling and mythology.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**ENGL 4800 Chaucer**

[3 credit hours]

A study of Geoffrey Chaucer’s major works and cultural, literary, and critical contexts. All works will be read in Chaucer’s original Middle English. Course has two variations: one focusing on The Canterbury Tales and another on the dream visions and Troilus and Criseyde. Consult Time Schedules or departmental course descriptions for the specific topic. May be repeated for credit with different topic. Recommended: ENGL 3610, 3790 or 3810.

**Term Offered:** Spring, Fall

**ENGL 4810 Shakespeare II**

[3 credit hours]

Advanced study of Shakespeare’s plays, particularly his later plays. Recommended: ENGL 3810.

**Term Offered:** Spring, Fall

**ENGL 4820 Milton**

[3 credit hours]

A study of the poetry and selected prose of John Milton. Recommended: ENGL 3610, 3810, or 3790.

**Term Offered:** Spring, Fall

**ENGL 4850 Studies In The Work Of A British Author**

[3 credit hours]

Author changes with each offering. Consult Time Schedules for authors to be studied. Can be repeated for credit if topic is different. Recommended: ENGL 3610, 3810, or 3790.

**Term Offered:** Spring, Fall

**ENGL 4860 Studies In The Work Of An American Author**

[3 credit hours]

Author changes with each offering. Consult Time Schedules for authors to be studied. Can be repeated for credit if topic is different. Recommended: ENGL 3600, 3810, or 3790.

**Term Offered:** Spring, Fall

**ENGL 4900 English Honors Seminar**

[2 credit hours]

The Honors Seminar is taken in conjunction with the Honors Thesis (ENGL 4960). Required of all candidates for departmental Honors.

**Term Offered:** Fall

**ENGL 4940 Internship In English**

[1-4 credit hours]

Internship with an approved program, company or agency employing research, writing editing or linguistics expertise. Student must submit proposal for approval by advisory and a departmental committee. (Repeatable for a maximum of 4 hours credit.)

**Term Offered:** Spring, Summer, Fall

**ENGL 4950 Special Topics For Writers**

[3 credit hours]

An advanced course in genre writing. Content varies with each offering. May be repeated once for credit.

**Term Offered:** Spring, Fall

**ENGL 4960 English Honors Thesis**

[4 credit hours]

Research and writing of a thesis on a topic in English or linguistics required of all candidates for departmental honors.

**Corequisites:** ENGL 4900

**Term Offered:** Spring, Fall

**ENGL 4980 Special Topics In Literature**

[3 credit hours]

An undergraduate course on a special topic. Consult Time Schedules for topic to be studied and semester offered.

**Term Offered:** Spring, Fall

**ENGL 4990 Independent Study**

[1-3 credit hours]

Supervised independent study in special topics of British and American language and literature. Courses may be repeated more than once for credit.

**Term Offered:** Spring, Summer, Fall

## B.A. in English

The English major offers two concentrations: Literature and Creative Writing.

Both concentrations require a minimum of 36 credit hours, and the major core is required of both concentrations. These courses are offered at least once a year.

Code	Title	Hours
<b>Creative Writing Concentration Course List</b>		
<i>English Major Core</i>		
Introduction to critical practice. Select one:		3
ENGL 3360	Introduction to Poetry and Poetics	
ENGL 3600	American Literary Traditions	
ENGL 3610	British Literary Traditions	
ENGL 3790	Foundations Of Literary Study	
ENGL 4780		
Literature excluded from the traditional canon. Select one:		3
ENGL 3660	Latinx Literature in the U.S.	
ENGL 3670	Literature of Diverse and Nonwhite Communities	
ENGL 3770	World Literature And Cultures	
ENGL 3850	LGBTQ Literature	
Two courses in literature after 1800:		6
ENGL 4280	American Fiction: 20th and 21st Century	



ENGL 4500	British Literature: The Romantic Period	
ENGL 4520	British Literature: The Victorian Period	
ENGL 4540	British Literature: The 20th and 21st Centuries	
ENGL 4560	Literature of the British Empire 1850 to the Present	
ENGL 4640	Early 20th Century American Poetry	
ENGL 4610	Nineteenth-Century Latinx Literature	
ENGL 4620	American Romanticism	
ENGL 4630	American Literary Realism	
ENGL 4640	Early 20th Century American Poetry	
ENGL 4650	African American Writers Before The 20th Century	
ENGL 4660	African American Literature In The 20th and 21st Century	
ENGL 4670	Asian American Literature	
ENGL 4680	American Literature Since World War II	
ENGL 4690	Native American Literature And Culture	
One course in a single author:		3
ENGL 3810	Shakespeare I	
ENGL 4800	Chaucer	
ENGL 4810	Shakespeare II	
ENGL 4820	Milton	
ENGL 4850	Studies In The Work Of A British Author	
ENGL 4860	Studies In The Work Of An American Author	
<i>Creative Writing Concentration</i>		
ENGL 3010	Creative Writing	3
One course in literature before 1800:		3
ENGL 3810	Shakespeare I	
ENGL 4110		
ENGL 4120		
ENGL 4200		
ENGL 4300	Medieval and Early Tudor Drama	
ENGL 4310	British Drama To 1642	
ENGL 4400	British Literature: The Medieval Period	
ENGL 4420	Renaissance Literature	
ENGL 4440	Early 17th Century English Literature	
ENGL 4460	British Literature: Restoration And 18th Century	
ENGL 4550	Literature of the British Empire, Beginnings to 1850	
ENGL 4600	Early American Literature	
ENGL 4800	Chaucer	
ENGL 4810	Shakespeare II	
ENGL 4820	Milton	
Two creative writing workshops (which may be repeated)		6
ENGL 4070	Writing Workshop In Poetry	
ENGL 4080	Writing Workshop In Fiction	
ENGL 4030	Writing Workshop In Nonfictional Prose	
Additional creative writing workshop or creative writing elective		3
Creative writing elective		3
ENGL 3020	The Writing Career: Readings and Professionalization	
ENGL 4950	Special Topics For Writers	
ENGL 3080	The Art And Process Of The Book	

English elective (any ENGL class at the 3-4000 level, can be creative writing, literature, or in other subjects) 3

#### Related Fields

The major requires 18 total credit hours in related fields outside of English, half of which must be on the 3000- or 4000-level<sup>1</sup> 18

**Total Hours** 54

**Code** **Title** **Hours**

#### Literature Concentration Course List

##### English Major Core

Introduction to critical practice. Select one: 3

ENGL 3360 Introduction to Poetry and Poetics

ENGL 3600 American Literary Traditions

ENGL 3610 British Literary Traditions

ENGL 3790 Foundations Of Literary Study

ENGL 4780

Literature excluded from the traditional canon--3000-level. Select one: 3

ENGL 3660 Latinx Literature in the U.S.

ENGL 3670 Literature of Diverse and Nonwhite Communities

ENGL 3770 World Literature And Cultures

ENGL 3850 LGBTQ Literature

Two courses in literature after 1800: 6

ENGL 4280 American Fiction: 20th and 21st Century

ENGL 4500 British Literature: The Romantic Period

ENGL 4520 British Literature: The Victorian Period

ENGL 4540 British Literature: The 20th and 21st Centuries

ENGL 4560 Literature of the British Empire 1850 to the Present

ENGL 4610 Nineteenth-Century Latinx Literature

ENGL 4620 American Romanticism

ENGL 4630 American Literary Realism

ENGL 4640 Early 20th Century American Poetry

ENGL 4650 African American Writers Before The 20th Century

ENGL 4660 African American Literature In The 20th and 21st Century

ENGL 4670 Asian American Literature

ENGL 4680 American Literature Since World War II

ENGL 4690 Native American Literature And Culture

One course in a single author: 3

ENGL 3810 Shakespeare I

ENGL 4800 Chaucer

ENGL 4810 Shakespeare II

ENGL 4820 Milton

ENGL 4850 Studies In The Work Of A British Author

ENGL 4860 Studies In The Work Of An American Author

**Concentration** 21

#### Literature Concentration

Literature Excluded from the Traditional Canon--4000-level. Select one:

ENGL 4560 Literature of the British Empire 1850 to the Present

ENGL 4610 Nineteenth-Century Latinx Literature

ENGL 4650	African American Writers Before The 20th Century
ENGL 4660	African American Literature In The 20th and 21st Century
ENGL 4670	Asian American Literature
ENGL 4690	Native American Literature And Culture

Two courses in literature before 1800:

ENGL 3810	Shakespeare I
ENGL 4110	
ENGL 4120	
ENGL 4200	
ENGL 4300	Medieval and Early Tudor Drama
ENGL 4310	British Drama To 1642
ENGL 4400	British Literature: The Medieval Period
ENGL 4420	Renaissance Literature
ENGL 4440	Early 17th Century English Literature
ENGL 4460	British Literature: Restoration And 18th Century
ENGL 4550	Literature of the British Empire, Beginnings to 1850
ENGL 4600	Early American Literature
ENGL 4800	Chaucer
ENGL 4810	Shakespeare II
ENGL 4820	Milton

Four ENGL electives

**Related Fields**

The major requires 18 total credit hours in related fields outside of English, half of which must be on the 3000- or 4000-level<sup>1</sup>

**Total Hours** **54**

<sup>1</sup> These are usually chosen from the other humanities, the social sciences, and interdisciplinary programs. The related fields requirement may also be satisfied by taking a minor.

- Creative Writing Concentration (p. 71)
- Literature Concentration (p. )

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

## Creative Writing Concentration

First Term	Hours
AR 1000 First Year Orientation	1
ENGL 1110 College Composition I	3
Natural Sciences Core	3
Arts/Humanities Core (Fine Arts)	3
Elementary Foreign Language I	4
Social Sciences Core	3
<b>Hours</b>	<b>17</b>

**Second Term**

ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
MATH 1180 Reasoning With Mathematics	3
HIST 1010-1220 Arts/Humanities Core (History)	3

Social Sciences Core	3
Elementary Foreign Language II	4
<b>Hours</b>	<b>16</b>

**Third Term**

ENGL 3010 Creative Writing	3
Natural Sciences Core	3
Social Sciences Core	3
Diversity of US	3
Intermediate Foreign Language I or approved culture course	3
<b>Hours</b>	<b>15</b>

**Fourth Term**

One course from introduction to critical practice category	3
One course from literature excluded from the traditional canon category	3
Natural Sciences Core	3
Natural Sciences Core (Lab)	1
Related or Minor course	3
Intermediate Foreign Language II or approved culture course	3
<b>Hours</b>	<b>16</b>

**Fifth Term**

One course from literature before 1800 category <sup>1</sup>	3
One single-author course <sup>1</sup>	3
Select one of the following:	3
ENGL 4030 Writing Workshop In Nonfictional Prose	
ENGL 4070 Writing Workshop In Poetry	
ENGL 4080 Writing Workshop In Fiction	
Related or Minor course 3000-4000 level	3
Related or Minor course	3
<b>Hours</b>	<b>15</b>

**Sixth Term**

Select one of the following:	3
ENGL 4030 Writing Workshop In Nonfictional Prose	
ENGL 4070 Writing Workshop In Poetry	
ENGL 4080 Writing Workshop In Fiction	
One course from literature after 1800 category	3
Related or Minor course	3
Non-US Diversity	3
Elective	3
<b>Hours</b>	<b>15</b>

**Seventh Term**

	3
Creative Writing elective	3
English elective	
Related or Minor course 3000-4000 level	3
Elective	1
Elective	3
<b>Hours</b>	<b>13</b>

**Eighth Term**

One course from literature after 1800 category	3
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ENGL Creative Writing workshop or elective	3
Related or Minor course 3000-4000	3
Elective	1
Elective	3
<b>Hours</b>	<b>13</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> ENGL 3810 is recommended for either of these two requirements, but may not count for both requirements.

## Literature Concentration

First Term		Hours
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
Natural Sciences Core		3
Arts/Humanities Core (Fine Arts)		3
Elementary Foreign Language I		4
Social Sciences Core		3
<b>Hours</b>		<b>17</b>

Second Term		Hours
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3
HIST 1010-HIST 1220	Arts/Humanities Core (History)	3
Social Sciences Core		3
Elementary Foreign Language II		4
<b>Hours</b>		<b>16</b>

Third Term		Hours
ENGL elective (3000-4000 level)		3
Natural Sciences Core		3
Social Sciences Core		3
Diversity of US		3
Intermediate Foreign Language I or approved culture course		3
<b>Hours</b>		<b>15</b>

Fourth Term		Hours
One course from introduction to critical practice category		3
One course from literature excluded from the traditional canon (3000-level) category		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
Related or Minor course		3
Intermediate Foreign Language II or approved culture course		3
<b>Hours</b>		<b>16</b>

Fifth Term		Hours
One course from literature before 1800 category <sup>1</sup>		3
One single-author course <sup>1</sup>		3
Related or Minor course		3
Related or Minor course		3

Elective	3
<b>Hours</b>	<b>15</b>

### Sixth Term

One course from literature before 1800 category	3
One course from the literature excluded from the traditional canon (4000-level) category	3
Related or Minor course 3000-4000 level	3
Non-US Diversity	3
Elective	3
<b>Hours</b>	<b>15</b>

### Seventh Term

One course from literature before 1800 category	3
One course from literature after 1800 category	3
ENGL elective (3000-4000 level)	3
Related or Minor course 3000/4000 level	3
Elective	1
<b>Hours</b>	<b>13</b>

### Eighth Term

ENGL elective (3000-4000 level)	3
ENGL elective (3000-4000 level)	3
Elective	3
Elective	1
Related or Minor course 3000/4000 level	3
<b>Hours</b>	<b>13</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> ENGL 3810 is recommended for either of these two requirements, but may not count for both requirements.

- PLO 1. Recognize literary form, genre, and structure and to recognize historical literary periods and their characteristics
- PLO 2. Discuss literary texts from various theoretical and critical perspectives, formulate ideas and connections between literary concepts and themes
- PLO 3. Recognize canonical authors and text; recognize race, gender, and class issues with respect to canon; and recognize differences between aesthetic and cultural concerns; for Creative Writing: recognize competent creative work in the genres of poetry, essay and fiction
- PLO 4. Demonstrate command of literary terminology and methodology, construct complex arguments, formulate hypotheses and thesis sentences to validate arguments; for Creative Writing: write persuasively about creative work, and offer constructive critiques
- PLO 5. Employ interpretive strategies –e.g. to perform exegesis, to show relations between form and content, to parse connections among individual words with respect to emotional connotations and denotative significance, and to construct arguments about the aesthetic, emotional, and intellectual relations among literary components of individual texts; for Creative Writing: apply critique to one's own creative work



- PLO 6. Write short essays, impromptu essays, and long research papers, showing knowledge of conventional rhetorical strategies; for creative writing, write competent creative work in one or more genres

## Minor in English

Code	Title	Hours
A minor in English requires a minimum of 18 credits.		
Select one of the following:		3
ENGL 3600	American Literary Traditions	
ENGL 3610	British Literary Traditions	
ENGL 3760	European Literature To The Renaissance	
ENGL 3770	World Literature And Cultures	
ENGL 3810	Shakespeare I	
Select one of the following:		3
ENGL 2800	Writing About Literature	
ENGL 3010	Creative Writing	
ENGL 3020	The Writing Career: Readings and Professionalization	
ENGL 3790	Foundations Of Literary Study	
Select at least three English courses at the 4000-level. At least one must be a literature course (numbered between 4200 and 4890).		9
Select an English elective at the 3000- or 4000-level.		3
<b>Total Hours</b>		<b>18</b>

No more than 12 credits used for a major, minor, or concentration in any college may be used toward the English minor.

## Department of Geography and Planning

Patrick Lawrence, Chair  
Beth Schlemper, B.A. Coordinator, Undergraduate Advisor

### Advanced Placement Program

Refer to the University of Toledo's Registrar page at [https://www.utoledo.edu/offices/registrar/student\\_records/advan\\_credits.html](https://www.utoledo.edu/offices/registrar/student_records/advan_credits.html) ([http://www.utoledo.edu/offices/registrar/student\\_records/advan\\_credits.html](http://www.utoledo.edu/offices/registrar/student_records/advan_credits.html)) for specific information on minimum scores and credits awarded for Advanced Placement examinations administered by the College Board Advanced Placement Program.

### Degrees Offered

- B.A. in Geography (p. 76)
- Geographic Information Science and Technology Certificate (p. 82)
- Urban and Regional Planning Certificate (p. 82)
- Minor in Geographic Information Science and Technology (p. 82)
- Minor in Human and Environmental Geography (p. 82)
- Minor in Urban and Regional Planning (p. 83)

### GEPL 1010 People, Places, and Society

[3 credit hours]

This course provides an overview of the geographic dimensions of human diversity with an emphasis on understanding the uneven distribution of people and resources in the context of globalization. It is a systematic treatment of the major concepts of human geography and their application to modern problems, population, migration, cultural patterns and processes, political organization of space, agricultural and rural land use, industrialization and economic development, and urban land use. (not for major credit)

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

### GEPL 1100 Environmental Sustainability

[3 credit hours]

While gaining a fundamental understanding of the world's physical environment, students explore the processes and spatial distributions of anthropological changes to the world's lands, freshwater, biota, oceans and atmosphere. Current issues such as global warming, acid rain, ozone depletion, deforestation and desertification are addressed.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

### GEPL 2010 Fundamentals Of Geography

[3 credit hours]

An introduction to basic geographic concepts of both physical and human geography, with emphasis on the interrelationships of people with their physical and cultural environments.

**Term Offered:** Spring

### GEPL 2030 Cultural Geography

[3 credit hours]

A learning-through-writing course. Systematic applications of the concepts of culture and cultural diversity to geographical themes and case studies.

**Term Offered:** Spring

Multicultural Non-US Diversity

### GEPL 2040 World Regional Geography

[3 credit hours]

This course explores the cultural, demographic, socio-economic, historical and political geographies of the world outside of the United States. World regions are examined and discussed with a focus on the forces that create both differences and interconnections among regions. The course uses the themes of globalization and human-environmental interaction, with an emphasis on understanding how these forces operate at different scales to create our global geography.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural Non-US Diversity

### GEPL 2050 World Cities

[3 credit hours]

This course discusses the physical, cultural, socio-economic aspects of the mega cities of the world - the World Cities. It examines the causes and stages of growth and the decline of cities.

**Term Offered:** Spring, Fall

**GEPL 2110 Maps and Map Analysis**

[3 credit hours]

This course provides an overview of the appropriate use of maps, a basic tool of analysis in geography and planning. Topics will include map scale and map projections, types of maps and their particular uses, elements of map design, effective communication with maps, special requirements of spatial data, and the fundamentals of spatial analysis using maps.

The focus is on the use of maps as tools for spatial analysis and not the production of maps.

**Term Offered:** Fall**GEPL 3030 Geography Of Europe**

[3 credit hours]

An introduction to the geography of Europe with an emphasis on boundaries, economic development, integration, identity, nationalism, and regional differences. The course includes an examination of how Europe has been defined and what it means to be European in both historical and contemporary contexts. It provides a critical perspective on the geography of Europe as it is impacted by local, regional, and global forces.

**Term Offered:** Spring**GEPL 3050 Geography of US and Canada**

[3 credit hours]

Systematic and regional survey of physical, social and economic geography of the region. Emphasis on the region with respect to worldwide/continental problems and prospects in economic development, management of resources and population adjustment.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**GEPL 3120 Geography Of Asia**

[3 credit hours]

Compares and contrasts physical and human aspects of Asian countries and peoples in relation to economic development.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**GEPL 3220 Geography Of Africa**

[3 credit hours]

Course begins with a general overview of Africa's physical environment, its colonial history and its people and cultures. It then examines a variety of themes associated with development, population, urban and political geography.

**Term Offered:** Fall

Multicultural Non-US Diversity

**GEPL 3300 Geography of Latin America and the Caribbean**

[3 credit hours]

This course explores one of the world's most vibrant regions, Latin America. This world region stretches across diverse landscapes, from tropical rainforests to the snowcapped peaks of the Andes, from megacities to empty deserts and plains. The diversity of environments fosters great cultural diversity, despite sharing similar historical roots. This course explores the geography of Latin America through a combination of thematic and regional approaches.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**GEPL 3440 Population Geography**

[3 credit hours]

A learning through writing course. Space and place facets of population size, growth, migration, distribution and composition with emphasis on the population trends and patterns in both developing and developed nations.

**GEPL 3610 Conservation And Resources**

[3 credit hours]

A timely examination of some basic philosophies, principles and ethical issues in conservation and resource discourses in geography and across the disciplines. Provocative case studies. A learning-through-writing (WAC) course.

**Term Offered:** Spring**GEPL 3650 Economic Geography**

[3 credit hours]

An introduction to economic geography; including industrial location theory, competing production systems, and shifts from manufacturing to service-based economies.

**Term Offered:** Spring, Fall**GEPL 3900 Environmental Planning**

[3 credit hours]

Study of how humans are impacting the health and sustainability of the earth by their actions and activities and means by which we can reduce the impacts by better planning and management of human uses. Topics include water resources, forests, natural hazards, and the Great Lakes, through conservation, protected areas, better use of science, stewardship, cooperation and community actions. Will include use of local examples and case studies drawn from Ohio and the US.

**Term Offered:** Spring, Fall**GEPL 4040 Geography Education Strategies**

[3 credit hours]

Use of geographic inquiry in the emerging integrated social studies and standard geography education curricula for K-12 instruction.

**Term Offered:** Fall**GEPL 4110 Geographic Information Systems**

[3 credit hours]

Introduction to computerized methods for the capture, storage, management, analysis and display of spatially-referenced data for the solution of planning, management and research problems.

**Term Offered:** Spring, Fall**GEPL 4160 Patterns Of World Development**

[3 credit hours]

An examination of contemporary global economic patterns and trends. Compares and contrasts population problems; the diffusion of multinational corporations, and the emergence of post-industrial economies.

**Term Offered:** Fall**GEPL 4180 Geographic Information Systems Applications**

[3 credit hours]

Advanced applications in geographic information systems (GIS) with an emphasis on advanced GIS analysis techniques, Global Positioning System applications in GIS, database design, and a survey of vector- and raster-based GIS software and databases.

**Prerequisites:** GEPL 4110 with a minimum grade of D-**Term Offered:** Spring

**GEPL 4210 Land Use Planning**

[3 credit hours]

A broad review of urban and regional planning in the US and Western Europe, introducing land use planning concepts and practices and their role in shaping the direction of urban development.

**Term Offered:** Spring**GEPL 4310 Geography Of Gypsies (Romanies) and Travelers - WAC**

[3 credit hours]

Explorations into identities and distributions of Gypsies (Romanies) and Travelers (GR&T peoples) worldwide and the challenges that their study presents to Geography and to other social science disciplines.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**GEPL 4420 Quantitative Methods in Geographic Research**

[3 credit hours]

An examination of quantitative methods commonly used in geographic research with an emphasis on spatial statistics and cartographic analysis.

**Term Offered:** Fall**GEPL 4490 Remote Sensing Of The Environment**

[3 credit hours]

Introduction to theory, methods and techniques used to gather and analyze remote sensor data. Topics range from low altitude air photo interpretation through satellite image acquisition. Recommended: GEPL 3550.

**Term Offered:** Fall**GEPL 4500 Digital Image Analysis**

[3 credit hours]

Using imagery captured by earth orbiting satellites, students will document changes on the surface of the earth addressing environmental issues. Students will have the opportunity to learn applications of this technology including project based work in the classroom.

**Prerequisites:** GEPL 4490 with a minimum grade of D- or EEES 4490 with a minimum grade of D- or GEPL 5490 with a minimum grade of C or EEES 5490 with a minimum grade of C

**Term Offered:** Spring**GEPL 4530 Principles Of Urban Planning**

[3 credit hours]

An introduction to planning theory. the planner's role in land use regulation economic development, housing and social service delivery is reviewed.

**Term Offered:** Fall**GEPL 4540 Weather And Climate**

[3 credit hours]

A survey analysis of meteorology and climatology. The physical processes of weather and the pattern of climate provide the basis for this course.

**Term Offered:** Summer, Fall**GEPL 4570 Land Development And Planning**

[4 credit hours]

The exploration of theoretical location analysis, pragmatic land development issues and analytic feasibility tools, and the consequences of land use policies that affect development.

**Term Offered:** Spring**GEPL 4580 Location Analysis**

[4 credit hours]

The application of geographic location theory, spatial interaction modeling, optimization techniques and geographic information system processing to the solution of facility location problems.

**Term Offered:** Spring**GEPL 4600 Urban Design**

[3 credit hours]

Concepts and procedures for the organization, design and development of public and private urban forms and spaces at the micro level, including a survey of intraurban elements, cultural, ecological and aesthetic considerations, and interdisciplinary collaboration.

**Term Offered:** Fall**GEPL 4650 Geography of Earth Systems**

[3 credit hours]

Using an Earth System Science approach linking the hydrosphere, biosphere, atmosphere, and lithosphere, students will explore the relationship and spatial characteristics of events such as hurricane landfall, volcanic eruptions and climate change.

**Term Offered:** Spring**GEPL 4700 Community Planning Workshop**

[3 credit hours]

This course introduces the skills and techniques used by practitioners in the planning process. Assignments will focus on the collection, analysis and communication of information by following community planning approaches.

**Term Offered:** Spring**GEPL 4710 Urban Geography**

[3 credit hours]

Geographic perspectives on the social, political and economic functions of cities. Issues of land use, redevelopment, residential and commercial geographies are examined in contemporary North American cities.

**Term Offered:** Spring, Fall**GEPL 4750 Transportation Geography**

[3 credit hours]

This course introduces students to the culture of transportation planning while honing their critical reading and analytical skills. The approach combines two types of analysis. One is a historical political-economy treatment of the evolution of the transportation systems, including the evolution of associated institutions, concluding with contemporary transportation planning issues. The other type of analysis is an introduction to the rational method for determining appropriate public responses for dealing with current transportation planning issues.

**Term Offered:** Spring, Fall**GEPL 4810 Political Geography**

[3 credit hours]

An examination of political actors and power relations at local, regional, national and global scales, and their impact on spaces and places. The course includes topics, such as state formation, electoral geography, identity and social movements, nationalism and regionalism, imperialism and post-colonialism, urban politics, feminist political geography, elites and marginalized individuals, and geopolitics.

**Term Offered:** Spring, Fall**GEPL 4910 Research in Geography**

[1-4 credit hours]

**GEPL 4920 Readings in Geography**

[1-3 credit hours]

**GEPL 4960 Honors Thesis in Geography**

[4 credit hours]

**GEPL 4990 Geography and Planning as Disciplines and Professions**

[1 credit hour]

This course provides an overview and synthesis of geography and planning as academic disciplines and as professions. The course proceeds along two tracks. In the first, students will read and discuss some of the classic literature that attempts to define both fields. In the second, students will learn about career resources for geographers and planners and learn to present themselves as professionals in the fields.

**Prerequisites:** GEPL 2010 with a minimum grade of D-

The honors program in the Department of Geography and Planning is open to all qualified undergraduate majors whether or not they are enrolled in College Honors. The following are requirements for entrance into the Honors program in Geography:

**Admission:**

1. The student must maintain a 3.5 minimum GPA in Geography courses.
2. The student must maintain a 3.3 minimum cumulative GPA.
3. 12 hours completed work in Geography.
4. Qualification as a Geography major whether or not they are enrolled in College honors.

**Requirements:**

A student must complete 9 hours in designated honors courses in Geography and a 4-hour senior honors thesis project. During the final year before graduation, the student will meet with the department's undergraduate advisor to select a faculty research advisor, complete and submit to the department's faculty for approval a senior honors project (GEPL 4960).

## Senior Honors Thesis

The title of the senior honors thesis is reported to the undergraduate advisory who will then select a faculty research advisor for the student. The title of the honor's thesis must be filed no later than one semester prior to the expected date of graduation. A copy must also be filed in the library of the Department and students are also expected, as a courtesy, to provide members of their thesis committee with copies.

## B.A. in Geography

- BA Geography with Concentration In Human And Environmental Geography (p. 76)
- BA Geography With Concentration In Geographic Information Science & Technology (GIS&T) (p. 77)
- BA Geography with a Concentration in (p. 77) Urban and Regional Planning
- BA Geography with a Concentration in Urban Studies

## BA Geography with Concentration in Human and Environmental Geography

31 hours required:

Code	Title	Hours
<b>Required Courses</b>		
GEPL 2010	Fundamentals Of Geography	3
GEPL 2110	Maps and Map Analysis	3
GEPL 4110	Geographic Information Systems	3
GEPL 4420	Quantitative Methods in Geographic Research	3
GEPL 4990	Geography and Planning as Disciplines and Professions	1
Environmental Geograpy - Select one:		3
GEPL 3610	Conservation And Resources	
GEPL 3900	Environmental Planning	
GEPL 4540	Weather And Climate	
GEPL 4650	Geography of Earth Systems	
Human Geography - Select one:		3
GEPL 2030	Cultural Geography	
GEPL 2040	World Regional Geography	
GEPL 2050	World Cities	
GEPL 3440	Population Geography	
GEPL 3650	Economic Geography	
GEPL 4160	Patterns Of World Development	
GEPL 4310	Geography Of Gypsies (Romanies) and Travelers - WAC	
GEPL 4710	Urban Geography	
GEPL 4750	Transportation Geography	
GEPL 4810	Political Geography	
Regional Geography - Select one:		3
GEPL 3030	Geography Of Europe	
GEPL 3050	Geography of US and Canada	
GEPL 3120	Geography Of Asia	
GEPL 3220	Geography Of Africa	
GEPL 3300	Geography of Latin America and the Caribbean	
GIS and Technology (GIS&T) – Select one:		3
GEPL 4180	Geographic Information Systems Applications	
GEPL 4490	Remote Sensing Of The Environment	
<i>Elective Hours</i> <sup>1</sup>		6
<b>Total Hours</b>		<b>31</b>

<sup>1</sup> Except GEPL 1010, and GEPL 1100.

### Combined bachelor's to master's- Geography pipeline program

Undergraduate students accepted to the **Combined bachelor's to master's- Geography pipeline program** option will be admitted to the **MA Geography program** and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester

that they intend to matriculate. **Students must have a cumulative higher education GPA of 3.0 to be accepted into this pipeline program.** They will then continue in to the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) **GEPL 5110, GEPL 5180, GEPL 5490, GEPL 5500, GEPL 5530, GEPL 5650, GEPL 5700, GEPL 5750** may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

### BA Geography with Concentration in Geographic Information Science & Technology (GIS&T)

31 hours required:

Code	Title	Hours
<b>Required:</b>		
GEPL 2010	Fundamentals Of Geography	3
GEPL 2110	Maps and Map Analysis	3
GEPL 4110	Geographic Information Systems	3
GEPL 4180	Geographic Information Systems Applications	3
GEPL 4420	Quantitative Methods in Geographic Research	3
GEPL 4490	Remote Sensing Of The Environment	3
GEPL 4500	Digital Image Analysis	3
GEPL 4990	Geography and Planning as Disciplines and Professions	1
Environmental Geography - Select one:		3
GEPL 3610	Conservation And Resources	
GEPL 3900	Environmental Planning	
GEPL 4540	Weather And Climate	
GEPL 4650	Geography of Earth Systems	
Human Geography - Select one:		3
GEPL 2030	Cultural Geography	
GEPL 2040	World Regional Geography	
GEPL 2050	World Cities	
GEPL 3440	Population Geography	
GEPL 3650	Economic Geography	
GEPL 4160	Patterns Of World Development	
GEPL 4310	Geography Of Gypsies (Romanies) and Travelers - WAC	
GEPL 4710	Urban Geography	

GEPL 4750	Transportation Geography	
GEPL 4810	Political Geography	
<i>Elective</i>		3
<b>Total Hours</b>		<b>31</b>

### Combined bachelor's to master's- Geography pipeline program

Undergraduate students accepted to the **Combined bachelor's to master's- Geography pipeline program** option will be admitted to the **MA Geography program** and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. **Students must have a cumulative higher education GPA of 3.0 to be accepted into this pipeline program.** They will then continue in to the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) **GEPL 5110, GEPL 5180, GEPL 5490, GEPL 5500, GEPL 5530, GEPL 5650, GEPL 5700, GEPL 5750** may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

### BA Geography with Concentration in Urban and Regional Planning

31 hours required:

Code	Title	Hours
<b>Required:</b>		
GEPL 2010	Fundamentals Of Geography	3
GEPL 2110	Maps and Map Analysis	3
GEPL 4110	Geographic Information Systems	3
GEPL 4210	Land Use Planning	3
GEPL 4420	Quantitative Methods in Geographic Research	3
GEPL 4530	Principles Of Urban Planning	3
GEPL 4700	Community Planning Workshop	3
GEPL 4750	Transportation Geography	3
GEPL 4990	Geography and Planning as Disciplines and Professions	1
Environmental Geography - Select one:		3
GEPL 3610	Conservation And Resources	
GEPL 3900	Environmental Planning	
GEPL 4540	Weather And Climate	



GEPL 4650	Geography of Earth Systems	
Human Geography - Select one:		3
GEPL 2030	Cultural Geography	
GEPL 2040	World Regional Geography	
GEPL 2050	World Cities	
GEPL 3440	Population Geography	
GEPL 3650	Economic Geography	
GEPL 4160	Patterns Of World Development	
GEPL 4310	Geography Of Gypsies (Romanies) and Travelers - WAC	
GEPL 4710	Urban Geography	
GEPL 4810	Political Geography	

**Total Hours** 31

### Combined bachelor's to master's- Geography pipeline program

Undergraduate students accepted to the **Combined bachelor's to master's- Geography pipeline program** option will be admitted to the **MA Geography program** and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. **Students must have a cumulative higher education GPA of 3.0 to be accepted into this pipeline program.** They will then continue in to the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit:

1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) **GEPL 5110, GEPL 5180, GEPL 5490, GEPL 5500, GEPL 5530, GEPL 5650, GEPL 5700, GEPL 5750** may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

BA Geography With Concentration in Urban Studies

Code	Title	Hours
GEPL 2010	Fundamentals Of Geography	3
GEPL 2050	World Cities	3
GEPL 2110	Maps and Map Analysis	3
GEPL 4110	Geographic Information Systems	3
GEPL 4420	Quantitative Methods in Geographic Research	3
GEPL 4530	Principles Of Urban Planning	3
GEPL 4710	Urban Geography	3
GEPL 4990	Geography and Planning as Disciplines and Professions	1

Select one from the following: WAC (major) 3

GEPL 3610	Conservation And Resources	
GEPL 2030	Cultural Geography	
SOC 2410	Communities - Writing Across the Curriculum	

### Major Elective

Select two from the following: 6

SOC 2640	Race, Class, And Gender	
SOC 2410	Communities - Writing Across the Curriculum	
SOC 4100	Community Organizing and Development	
SOC 4440	People, Population, and Society: Demographic Analysis	
SOC 4450	Exploring the City	
PSC 3410	Principles of Public Policy	
PSC 4300	Principles of Public Administration	
PSC 4340	Environmental Policy	
PSC 4220	Advocacy Groups in US Politics	
GEPL 4210	Land Use Planning	
GEPL 3900	Environmental Planning	
GEPL 4750	Transportation Geography	

**Total Hours** 31

*Below are sample plans of study. Consult your degree audit for your program requirements.*

- Geography with Concentration in Human and Environmental Geography (p. 78)
- Geography with Concentration in Geography Information Science & Technology (GIS&T) (p. )
- Geography with Concentration in Urban and Regional Planning (p. 80)
- BA Geography with a Concentration in Urban Studies (p. 78)

## Geography with Concentration in Human and Environmental Geography

First Term	Hours	
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
HIST 1010-1200	Arts/Humanities	3
Social Sciences Core		3
Social Science core		3
<b>Hours</b>		<b>16</b>

Second Term	Hours	
GEPL 2010	Fundamentals Of Geography	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		3
Natural Science core (lab)		1
Arts/Humanities Core		3
Arts/Humanities (Fine Art)		3
<b>Hours</b>		<b>16</b>

**Third Term**

GEPL 2110	Maps and Map Analysis	3
GEPL Major Elective: Regional Geography		3
GEPL 3030	Geography Of Europe	
GEPL 3050	Geography of US and Canada	
GEPL 3120	Geography Of Asia	
GEPL 3220	Geography Of Africa	
GEPL 3300	Geography of Latin America and the Caribbean	
Elementary Foreign Language I		4
ENGL 2710-2800 Arts/Humanities (English Lit)		3
Elective		3

**Hours 16**

**Fourth Term**

GEPL Major Elective: Human Geography		3
GEPL 2030	Cultural Geography	
GEPL 2040	World Regional Geography	
GEPL 2050	World Cities	
GEPL 3440	Population Geography	
GEPL 3650	Economic Geography	
GEPL 4160	Patterns Of World Development	
GEPL 4710	Urban Geography	
GEPL 4750	Transportation Geography	
GEPL 4810	Political Geography	
GEPL Major Elective: Environmental Geography		3
GEPL 3610	Conservation And Resources	
GEPL 3900	Environmental Planning	
GEPL 4540	Weather And Climate	
GEPL 4650	Geography of Earth Systems	
Natural Sciences Core		3
Elementary Foreign Language II		4

**Hours 13**

**Fifth Term**

GEPL 4420	Quantitative Methods in Geographic Research	3
Non-US Diversity		3
Related or Minor Course		3
Related or Minor Course		3
Intermediate Foreign Language 1 or approved culture course		3

**Hours 15**

**Sixth Term**

GEPL 4110	Geographic Information Systems	3
GEPL Major Elective (WAC)		3
Related or Minor Course		3
US Diversity		3
Intermediate Foreign Language II or approved culture course		3

**Hours 15**

**Seventh Term**

GEPL Major Elective: GIS&T		3
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GEPL 4180	Geographic Information Systems Applications	
GEPL 4490 Remote Sensing Of The Environment		
GEPL 4990	Geography and Planning as Disciplines and Professions	1
Related or Minor Course		3
Minor course or Elective		3
Elective (WAC)		3
Elective		2

**Hours 15**

**Eighth Term**

GEPL Major Elective <sup>1</sup>		3
Related or Minor course		3
Related or Minor Course		3
Elective		5

**Hours 14**

**Total Hours 120**

<sup>1</sup> If no Writing Across the Curriculum (WAC) course has been taken in the major, one elective must be a WAC course.

## Geography with Concentration in Geography Information Science & Technology (GIS&T)

	Hours	
<b>First Term</b>		
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
HIST 1010-1200 Arts/Humanities Core (History)		3
Social Sciences Core		3
Social Science core		3

**Hours 16**

**Second Term**

GEPL 2010	Fundamentals Of Geography	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Arts/Humanities Core		3
Arts/Humanities Core (Fine Art)		3
Natural Science Core		3
Natural Sciences core (lab)		1

**Hours 16**

**Third Term**

GEPL 2110	Maps and Map Analysis	3
GEPL Major Elective: Human Geography		3
GEPL 2030	Cultural Geography	
GEPL 2040	World Regional Geography	
GEPL 2050	World Cities	
GEPL 3440	Population Geography	
GEPL 3650	Economic Geography	



GEPL 4160	Patterns Of World Development	
GEPL 4710	Urban Geography	
GEPL 4810	Political Geography	
ENGL 2710-2800	Arts/Humanities Core (English Lit)	3
Elementary Foreign Language I		4
<b>Hours</b>		<b>13</b>
<b>Fourth Term</b>		
GEPL 4110	Geographic Information Systems	3
Related or Minor course		3
Elementary Foreign Language II		4
Natural Sciences Core		3
Elective		2
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
GEPL 4420	Quantitative Methods in Geographic Research	3
GEPL 4490	Remote Sensing Of The Environment	3
Intermediate Foreign Language I or approved culture course		3
Related or Minor Course		3
Non-US Diversity		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
GEPL 4180	Geographic Information Systems Applications	3
Intermediate Foreign Language II or approved culture course		3
Related or Minor Course		3
Diversity of US		3
GEPL Major elective (WAC)		3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
GEPL 4990	Geography and Planning as Disciplines and Professions	1
GEPL Major Elective: Environmental Geography		3
GEPL 3610	Conservation And Resources	
GEPL 3900	Environmental Planning	
GEPL 4540	Weather And Climate	
GEPL 4650	Geography of Earth Systems	
Minor course or Elective		3
Related or Minor course		3
Elective (WAC)		3
Elective		2
<b>Hours</b>		<b>15</b>
<b>Eighth Term</b>		
GEPL 4500	Digital Image Analysis	3
Related or Minor course		3
GEPL Major Elective <sup>1</sup>		3
Elective		6
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> If no Writing Across the Curriculum (WAC) course has been taken in the major, this elective must be a WAC course.

## Geography with Concentration in Urban and Regional Planning

<b>First Term</b>		<b>Hours</b>
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
HIST 1010-1200	Arts/Humanities Core (History)	3
MATH 1180	Reasoning With Mathematics	3
Social Sciences Core		6
<b>Hours</b>		<b>16</b>
<b>Second Term</b>		
GEPL 2010	Fundamentals Of Geography	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Arts/Humanities Core		3
Natural Science Core		3
Natural Sciences Core (lab)		1
Arts/Humanities Core (Fine Art)		3
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
GEPL 2110	Maps and Map Analysis	3
GEPL 4530	Principles Of Urban Planning	3
ENGL 2710-2800	Arts/Humanities Core (English Lit)	3
Elementary Foreign Language I		4
Natural Science core		3
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
GEPL 4210	Land Use Planning	3
GEPL Major Elective		3
Social Sciences Core		3
Elementary Foreign Language II		4
Related or minor course		3
<b>Hours</b>		<b>16</b>
<b>Fifth Term</b>		
GEPL 4420	Quantitative Methods in Geographic Research	3
Related or Minor course		6
Non-US Diversity		3
Intermediate Foreign Language I or approved culture course		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
GEPL 4110	Geographic Information Systems	3
GEPL 4750	Transportation Geography	3
GEPL Major Elective: Environmental Geograpjy		3
GEPL 3610	Conservation And Resources	
GEPL 3900	Environmental Planning	



GEPL 4540	Weather And Climate	
GEPL 4650	Geography of Earth Systems	
Diversity of US		3
Intermediate Foreign Language II or approved culture course		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

GEPL 4990	Geography and Planning as Disciplines and Professions	1
GEPL Major Elective: Human Geography		3
GEPL 2030	Cultural Geography	
GEPL 2040	World Regional Geography	
GEPL 2050	World Cities	
GEPL 3440	Population Geography	
GEPL 3650	Economic Geography	
GEPL 4160	Patterns Of World Development	
GEPL 4710	Urban Geography	
GEPL 4810	Political Geography	
Elective (WAC)		3
Related or Minor course		6
<b>Hours</b>		<b>13</b>

**Eighth Term**

GEPL 4700	Community Planning Workshop	3
GEPL Major Elective <sup>1</sup>		3
Related or Minor course		3
Elective		4
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> If no Writing Across the Curriculum (WAC) course has been taken in the major, this elective must be a WAC course.

**BA Geography with a Concentration in Urban Studies**

First Term		Hours
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
Arts and Humanities Core (HIST 1010-1200)		3
Social Science Core		3
GEPL Major Elective		3
<b>Hours</b>		<b>16</b>

**Second Term**

GEPL 2010	Fundamentals Of Geography	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Art/Humanities Core		3
Art/Humanities Core		3
Natural Science Core with Laboratory		4
<b>Hours</b>		<b>16</b>

**Third Term**

GEPL 2110	Maps and Map Analysis	3
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GEPL 2050	World Cities	3
Art/Humanities Core (ENGL 2710-2800) English Literature		3
Natural Science Core		3
Elementary Foreign Language		4
<b>Hours</b>		<b>16</b>

**Fourth Term**

GEPL 4110	Geographic Information Systems	3
GEPL 4530	Principles Of Urban Planning	3
Social Sciences Core		3
WAC Major Requirement		3
Elementary Foreign Language II		4
<b>Hours</b>		<b>16</b>

**Fifth Term**

WAC Non-Major Requirement		3
Urban Studies Elective		3
Diversity US		3
Intermediate Foreign Language I OR Approved Culture Course		3
Elective		3
<b>Hours</b>		<b>15</b>

**Sixth Term**

GEPL 4420	Quantitative Methods in Geographic Research	3
GEPL 4710	Urban Geography	3
Non US-Diversity		3
Intermediate Foreign Language II OR Approved Culture Course		3
GEPL Major Elective		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

GEPL 4900		1
Urban Studies Elective		3
Related Major or Minor Course		7
Elective		3
<b>Hours</b>		<b>14</b>

**Eighth Term**

GEPL Major Elective		3
Elective		3
Related Major or Minor Course		3
Related Major or Minor Course		3
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

- 1. State the basic nature of human geography and its subfields (e.g., cultural, economic, environmental, political, social, urban, etc.);
- 2. Describe the basic nature of human-environmental interaction and the importance of these relationships;
- 3. State the dominant forces that have shaped and continue to shape world regions;
- 4. Apply the basic tools of geographic analysis and spatial thinking to investigate a geographic issue;



- 5. Construct a map using appropriate cartographic design, visualization and quantitative data manipulation;
- 6. Identify different kinds of maps and their uses as well as interpret what geographic information is represented on them;
- 7. Identify the fundamental concepts of Geographic Information Systems, and evaluate their importance in the further study of this evolving science;
- 8. Apply fundamental quantitative methods to a geographic issue;
- 9. Develop appropriate written and oral skills necessary for graduate study or a professional career, including the ability to present oneself in a professional manner;
- 10. Understand the importance of geographic inquiry and problem solving in a rapidly globalizing world, and construct an argument to explain that importance to those who are ignorant of it.

## Geographic Information Science and Technology Certificate

Code	Title	Hours
GEPL 4110	Geographic Information Systems	3
GEPL 4180	Geographic Information Systems Applications	3
GEPL 4490	Remote Sensing Of The Environment	3
<b>Total Hours</b>		<b>9</b>

- 1. Apply the basic tools of geographic analysis and spatial thinking to investigate a geographic issue
- 2. Construct a map using appropriate cartographic design, visualization and quantitative data manipulation
- 3. Identify the fundamental concepts of Geographic Information Systems, and evaluate their importance in the further study of this evolving science
- 4. Identify different kinds of maps and their uses as well as interpret what geographic information is represented on them

## Urban and Regional Planning Certificate

Code	Title	Hours
GEPL 4530	Principles Of Urban Planning	3
GEPL 4210	Land Use Planning	3
GEPL 4700	Community Planning Workshop	3
<b>Total Hours</b>		<b>9</b>

- SLO 1. Understand the history of urban and regional planning in the U.S.
- SLO 2. Explain important approaches and tools underlying urban and regional planning
- SLO 3. Construct arguments to support a particular planning perspective

## Minor in Geographic Information Science and Technology

Code	Title	Hours
<b>Required:</b>		
GEPL 2010	Fundamentals Of Geography	3
GEPL 2110	Maps and Map Analysis	3
GEPL 4110	Geographic Information Systems	3
GEPL 4180	Geographic Information Systems Applications	3
GEPL 4490	Remote Sensing Of The Environment	3
GEPL 4500	Digital Image Analysis	3
<b>Total Hours</b>		<b>18</b>

## Minor in Human and Environmental Geography

Code	Title	Hours
<b>Required Courses</b>		
GEPL 2110	Maps and Map Analysis	3
GEPL 2010	Fundamentals Of Geography	3
<i>Environmental Geography - Select one:</i>		
GEPL 3610	Conservation And Resources	3
GEPL 3900	Environmental Planning	
GEPL 4540	Weather And Climate	
GEPL 4650	Geography of Earth Systems	3
<i>Human Geography - Select one:</i>		
GEPL 2030	Cultural Geography	3
GEPL 2040	World Regional Geography	
GEPL 2050	World Cities	
GEPL 3440	Population Geography	
GEPL 3650	Economic Geography	
GEPL 4160	Patterns Of World Development	
GEPL 4710	Urban Geography	
GEPL 4750	Transportation Geography	
GEPL 4810	Political Geography	
<i>Regional Geography - Select one:</i>		
GEPL 3030	Geography Of Europe	3
GEPL 3050	Geography of US and Canada	
GEPL 3120	Geography Of Asia	
GEPL 3220	Geography Of Africa	
GEPL 3300	Geography of Latin America and the Caribbean	
<i>GIS and Technology (GIS&amp;T) - Select one:</i>		
GEPL 4110	Geographic Information Systems	3
GEPL 4490	Remote Sensing Of The Environment	
<b>Total Hours</b>		<b>18</b>

## Minor in Urban and Regional Planning

Code	Title	Hours
<b>Core Curriculum</b>		
GEPL 4210	Land Use Planning	3
GEPL 4530	Principles Of Urban Planning	3
GEPL 4600	Urban Design	3
GEPL 4700	Community Planning Workshop	3
GEPL 4750	Transportation Geography	3
<b>Electives</b>		
Select 1 of the following:		3
GEPL 3900	Environmental Planning	
GEPL 4570	Land Development And Planning	
GEPL 4710	Urban Geography	
<b>Total Hours</b>		<b>18</b>

## Department of History

Ami Pflugrad-Jackisch, Department Chair  
Charles Beatty-Medina, Undergraduate Advisor

### Advanced Placement Program

Refer to the University of Toledo's Registrar page at [https://www.utoledo.edu/offices/registrar/student\\_records/advan\\_credits.html](https://www.utoledo.edu/offices/registrar/student_records/advan_credits.html) for specific information on minimum scores and credits awarded for Advanced Placement examinations administered by the College Board Advanced Placement Program.

### Degrees Offered

- B.A. in History (p. 88)
- Minor in History (p. 89)

#### HIST 1010 Europe To 1600

[3 credit hours]

A survey of western Europe, including its ancient Jewish, Greco-Roman and Christian roots; the Middle Ages, Renaissance and Reformation.

**Term Offered:** Spring, Fall

Core Arts & Humanities, OT36 Arts and Humanities

#### HIST 1020 Europe From 1600

[3 credit hours]

A survey of European history from the 17th century to the present with emphasis on the major political, economic, social and cultural trends.

**Term Offered:** Spring, Fall

Core Arts & Humanities, OT36 Arts and Humanities

#### HIST 1050 World History To 1500

[3 credit hours]

A survey of world history from the first humans to 1500. Focuses on how agriculture changed human life, the early development of world religions, and contact across cultures. Learn about empires such as China, Persia, Rome, Mali, and the Aztec.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

#### HIST 1060 World History From 1500

[3 credit hours]

A survey of world history from 1500 to the present. Cultural and political topics are treated so as to draw comparisons between the most significant modern societies.

**Term Offered:** Spring, Fall

Core Arts & Humanities, OT36 Arts and Humanities

#### HIST 1070 The Contemporary World

[3 credit hours]

This thematic survey of the 20th century from a historical and global perspective emphasizes the origins of the world in which we live and discusses some of our alternative futures.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

#### HIST 1090 East Asia From 1800

[3 credit hours]

Multidisciplinary introduction to the history, civilization, political organization, international relations, social and economic patterns, and cultural trends of China and Japan since 1800.

**Term Offered:** Spring, Fall

Core Arts & Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

#### HIST 1100 Latin American Civilizations

[3 credit hours]

A thematic survey from pre-Columbian times to the present. Covers Native American cultures, European colonial policies and institutions, independence movements, the emergence of new nations and twentieth-century problems.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

#### HIST 1110 African Civilization

[3 credit hours]

General cultural and historical survey of Africa south of the Sahara from earliest times to the 20th century. Includes topics on art, literature, philosophy, religion and society.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

#### HIST 1120 Middle East Civilization

[3 credit hours]

General cultural and historical survey of the Middle East and Islam from 600 to the 20th century. Includes topics in historical movements, literature, religion, and social and intellectual history.

**Term Offered:** Spring, Fall

Core Arts & Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

#### HIST 1130 Introduction To Historical Thinking

[3-4 credit hours]

(Not for major credit) An introduction to the nature, concepts and skills of the discipline of history designed to improve historical awareness and the ability to think historically. Occasionally offered as a writing intensive course.

**Term Offered:** Spring, Fall

Core Arts & Humanities



**HIST 2000 Methods Seminar - WAC**

[3 credit hours]

Research techniques, writing of research papers, and resumes. Introduction to historiography. Offered as a writing intensive course.

**Term Offered:** Spring, Fall**HIST 2010 America To 1865**

[3 credit hours]

The development of the United States from its Native American and immigrant roots through the Civil War.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**HIST 2020 America From 1865**

[3 credit hours]

Survey of American history since the Civil War, with special attention to political, social, economic and cultural developments.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**HIST 2030 Great Americans**

[3 credit hours]

The careers of selected Americans in politics, business, science, religion and literature.

**Term Offered:** Spring, Fall**HIST 2050 Ancient Greece**

[3 credit hours]

Survey of the Greek and Hellenistic world.

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**HIST 2060 Ancient Rome**

[3 credit hours]

Survey of the Roman Republic and Empire.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**HIST 2170 Great Britain To 1714**

[3 credit hours]

An introductory course on English history from the Roman conquest to 1714. Emphasis on the Norman conquest, social and political life in medieval England, the monarchy, and common law.

**Term Offered:** Summer, Fall**HIST 2250 World War I**

[3 credit hours]

World War I from origins to conclusion and its effect on the course of the 20th century. Political and diplomatic background, conduct, termination, technology, and the war's effect on society and the 20th century.

**Term Offered:** Fall**HIST 2260 World War II On Film**

[3 credit hours]

Analysis of contemporary and retrospective documentary film treatments of major aspects of World War II, with emphasis on their historical accuracy and authenticity.

**HIST 2290 Toledo: Metropolitan Era, 1880-1980**

[3 credit hours]

The growth of Toledo in the 20th century, including suburbanization, the city's leadership in the national Progressive Movement, Depression and New Deal, organized labor, individual suburbs, and recent problems.

**HIST 2340 American Indian History**

[3 credit hours]

An introduction to Indian-White relations from pre-Columbian times to present. Emphasizes tribes of the United States, Mexico and Canada.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**HIST 2640 Medieval Russia**

[3 credit hours]

Russia from the 9th century to 1700, including Kievan and Moscovite Russia.

**Term Offered:** Fall

Multicultural Non-US Diversity

**HIST 2650 Modern Russia**

[3 credit hours]

Russia from 1700 to the present, including Imperial and Soviet Russia.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**HIST 2700 Japan And World War II**

[3 credit hours]

A study of the factors behind Japan's entry into World War II with the United States and the Allied Powers and an in-depth treatment of Japan at war.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**HIST 2710 Postwar Japan**

[3 credit hours]

This course examines the development of Japan since the war. It focuses on the political, economic, social and cultural changes since 1945 and relates these factors to Japan's international relations.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**HIST 2730 The Chinese Revolution**

[3 credit hours]

This course examines the process by which Mao Zedong and the Chinese Communist Party came to power. It treats the political, economic and social forces behind the Chinese revolution (1900-49).

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**HIST 2980 Special Topics**

[1-4 credit hours]

Topics selected by various instructors. May be repeated when the topic varies.

**Term Offered:** Spring, Fall**HIST 3100 European Middle Ages I**

[3 credit hours]

The history of Western Europe from its beginnings to the eve of the First Crusade.

**Term Offered:** Spring, Fall**HIST 3110 European Middle Ages II**

[3 credit hours]

Europe from the First Crusade to the late fifteenth century.

**Term Offered:** Spring, Fall

**HIST 3120 Women in Medieval Europe**

[3 credit hours]

Women's lives in medieval Europe from a range of perspectives, including noblewomen, townswomen, peasant women, religious women. Students will gain an appreciation of how medieval women's lives were different from and similar to those of modern women, as well as a broader understanding of the European middle ages.

**HIST 3160 The American West**

[3 credit hours]

Settlement since the Civil War; mining rushes and Indian wars; violence and outlaws; farming and cattle ranching. Twentieth-century politics; ethnicity; and economics. Growth of California and the Sunbelt states.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**HIST 3200 Colonial Latin America**

[3 credit hours]

Latin American history to 1825. Covers pre-Columbian Indian civilizations including Aztecs and Incas; Spanish and Portuguese conquests and Africans in the Americas; colonial policies and institutions; colonial society and independence movements.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**HIST 3210 Modern Latin America**

[3 credit hours]

Major economic, political and social developments from independence to the present. Covers the export boom, neocolonialism, nationalism, and revolutions in Latin America. Considers how, in spite of the region's tremendous diversity, there is a shared "Latin American" experience.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**HIST 3250 African-American History To 1865**

[3 credit hours]

An examination of the historical experiences of African-Americans in the United States from 1619 to 1865.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**HIST 3260 African-American History From 1865**

[3 credit hours]

An examination of the historical experiences of African-Americans in the United States since 1865.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**HIST 3270 The City In American History, 1607-1850**

[3 credit hours]

Examination of early American urban development and culture. Topics include the development of urban infrastructure, crime and disorder; moral reform; religious revival; immigration; prostitution; the development of commercial entertainment.

**Term Offered:** Spring, Fall**HIST 3280 City And Metropolis In Modern America, 1850 To The Present**

[3 credit hours]

The growth of the 19th-century city and the emergence of the 20th-century American metropolis. Urban problems of the 20th century.

**Term Offered:** Spring, Fall**HIST 3290 Ohio History**

[3 credit hours]

From colonial times to the present.

**Term Offered:** Spring, Summer, Fall**HIST 3310 Ethnic America**

[3 credit hours]

American ethnic diversity from the colonial era to recent decades. A study of individuals and groups. Topics include American identity and Americanization, migration, legislation, nativism.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**HIST 3360 American Intellectual History I**

[3 credit hours]

Development and influence of major ideas from the colonial period to 1865. Topics include Puritanism, the Enlightenment, Democracy and Transcendentalism.

**Term Offered:** Spring**HIST 3380 Business And American Society**

[3 credit hours]

The growth of American business from the eighteenth century to the present. Examines enterprise and its relationship to culture, politics, technological developments and economic change.

**Term Offered:** Spring, Fall**HIST 3420 American Military History**

[3 credit hours]

The development of the strategy, tactics, organization, operation and policies of the armed forces of the U.S.; the interaction with technological factors, foreign policy goals, international problems and American society.

**Term Offered:** Fall**HIST 3470 U.S. Disability History**

[3 credit hours]

Provides a historical overview of the lived experiences of people defined as disabled and changing historical definitions of disability in the region that became the United States

**Term Offered:** Spring, Fall**HIST 3480 American Labor And Working Class History**

[3 credit hours]

Development of working class communities, cultures, organizations and ideology from colonial era to the present. Topics include industrialization, unionization, labor law, gender and race constructions.

**Term Offered:** Spring

Multicultural US Diversity

**HIST 3530 20th Century Germany**

[3 credit hours]

Germany's development from the end of World War I to the present with emphasis on the rise of Nazism, World War II, and the division and new unification of Germany.

**Term Offered:** Fall**HIST 3540 History Of The Middle East From 600 To 1500**

[3 credit hours]

A survey of Middle East history from the emergence of Islam and the formation of Islamic states until the establishment of the Ottoman and Persian empires in the 15th-16th centuries.

Multicultural Non-US Diversity

**HIST 3550 History Of The Middle East Since 1500**

[3 credit hours]

History of the Middle East from the collapse of the Medieval Muslim States and the rise of the Ottoman Empire in the 16th century through the period of European intervention to the development of independent Middle Eastern states in the 20th century.

**Term Offered:** Spring, Fall  
Multicultural Non-US Diversity

**HIST 3600 Women In American History**

[3 credit hours]

This course presents American history from early settlement to the present by examining the contributions of women, in interaction with men, to the immensely complex fabric of American life.

**Term Offered:** Spring, Fall  
Multicultural US Diversity

**HIST 3630 Africa To 1800**

[3 credit hours]

Africa from antiquity to 1800. Topics include the peopling of the continent, growth of centralized political institutions, stateless societies, Islamic penetration, African slave trade.

**Term Offered:** Spring, Summer, Fall  
Multicultural Non-US Diversity

**HIST 3640 Africa Since 1800**

[3 credit hours]

Africa from 1800 to the present. Subjects include 19th century, colonial and independent Africa. Specific topics: the rise of South Africa, imperialism, African resistance and nationalism and independent African political, cultural and economic systems.

**Term Offered:** Spring, Summer, Fall  
Multicultural Non-US Diversity

**HIST 3870 Junior Honors Research I**

[3 credit hours]

Independent research on specific historical topics.

**Term Offered:** Spring, Summer, Fall

**HIST 3880 Junior Honors Research II**

[3 credit hours]

Independent research on specific historical topics.

**Term Offered:** Spring, Fall

**HIST 3980 Special Topics**

[1-4 credit hours]

Topics selected by various instructors. May be repeated when the topic varies.

**Term Offered:** Spring, Summer, Fall

**HIST 4050 Muslims, Christians, and Jews in Medieval Spain**

[3 credit hours]

This course will provide an overview of the political and cultural history of medieval Spain while allowing students time and space to grapple with primary sources and historical arguments. The class will investigate the concept of *convivencia* or "living together," tracing its development in the works of historians, and evaluating whether it is a concept that can adequately be applied to medieval Spain.

**Term Offered:** Spring, Fall

**HIST 4110 Sports, Race, and Power in Apartheid South Africa**

[3 credit hours]

The class aims to interrogate the ways in which politics of sports, race and power, as well as resistance, intersected during the Apartheid era in South Africa, and what the legacies thereof are.

**Term Offered:** Spring, Fall  
Multicultural Non-US Diversity

**HIST 4200 Colonial Foundations Of U.s.**

[3 credit hours]

Colonial America from early settlement to the eve of the American Revolution. Examination of the American Colonies from an Atlantic perspective, focusing on European motivation for settlement, European-Native American relations, the origins and development of slavery, religious and economic change, and the creation of early American culture.

**Term Offered:** Fall

**HIST 4210 Women In Early America**

[3 credit hours]

Examination of the evolution of women's experience in the United States from colonization to the Civil War era.

**Term Offered:** Fall  
Multicultural US Diversity

**HIST 4220 The American Revolution**

[3 credit hours]

Examination of the decades surrounding the American Revolution and America's transformation from British colony to independent republic. Political and social origins of the Revolution; formation of the republican state; changing notions of citizenship and equality; the role of political leaders in society; social and cultural consequences of the Revolution.

**Term Offered:** Fall

**HIST 4250 Civil War And Reconstruction**

[3 credit hours]

Slavery and the Constitution in the sectional controversy, the political and military events of the Civil War, and the impact of the war on American society, 1848-1876.

**Term Offered:** Spring, Fall

**HIST 4270 20th Century America, 1920-1945**

[3 credit hours]

Social, political and economic development of the United States, 1920-1945. The Republican ascendancy, the car culture, Great Depression, New Deal and World War II.

**Term Offered:** Fall

**HIST 4280 U.s. Since 1945: Affluence And Anxiety**

[3 credit hours]

Social, economic and political development of the United States since 1945. The Cold War, McCarthyism, Eisenhower Equilibrium, the New Frontier and the Great Society, civil rights, Watergate and the Reagan Revolution.

**Term Offered:** Spring, Fall

**HIST 4290 US Women from 1865**

[3 credit hours]

A survey of women in the United States from 1865. Covers women's political, economic, and social participation in American life. Particular attention is given to the life experiences of women from a diversity of racial, ethnic, sexual, and socio-economic backgrounds.

**Term Offered:** Spring, Fall

**HIST 4300 LGBTQ History in America**

[3 credit hours]

This course explores the history of lesbian, gay, bisexual, transgender, and queer (LGBTQ) people in the United States from the pre-colonial period to the present day. It focuses on the processes of individual and group interactions, construction of cultural identities, and societal perceptions and their consequences. Topics of discussion include the historically contingent nature of sexual and gender identities, the medicalization of non-normative behaviors, the LGBTQ rights movement, and the AIDS crisis.

**Term Offered:** Spring, Fall  
Multicultural US Diversity

**HIST 4340 Far Western Frontier**

[3 credit hours]

Native Americans; Spanish conquistadors and missionaries; American scientific and military exploration; mountain men and fur trade; international rivalries and Mexican War; gold rush of '49.

**HIST 4430 Slavery In America**

[3 credit hours]

Stresses the African continuum among slaves within the context of variations in goals and policies of slaveowners, slave trade, slave economics, demographics, slave labor and formation of slave culture.

**Term Offered:** Spring, Summer, Fall  
Multicultural US Diversity

**HIST 4450 The United States And Latin America**

[3 credit hours]

Examines the 19th and 20th centuries: emphasizing events and movements defining political, economic, migratory, military, and cultural relations and the emergence of Latinos as largest minority group in the US.

Multicultural US Diversity

**HIST 4470 People And Politics In Mexico**

[3 credit hours]

Mexican history from pre-Hispanic times to the present. Emphasis on the political, social and economic changes imposed by the Spaniards; the legacy of colonialism on the modern nation; the Mexican Revolution and the "Mexican Miracle."

**Term Offered:** Summer, Fall  
Multicultural Non-US Diversity

**HIST 4490 Witchcraft And Magic In Medieval And Early Modern Europe**

[3 credit hours]

Witchcraft, religion and magic in western Europe from the 12th through 17th centuries, focusing on the origins of witchcraft belief, diabolical magic, the witchcraze and its decline.

**Term Offered:** Spring, Fall

**HIST 4720 Modern Chinese History**

[3 credit hours]

China in transition under the impact of the West; forces leading to the revolution of 1911, the Nationalists' struggle, the emergence of the People's Republic of China and aspects of post-revolutionary China.

**Term Offered:** Spring  
Multicultural Non-US Diversity

**HIST 4740 Modern Japanese History**

[3 credit hours]

Japan in transition under Western influence, forces leading to the Meiji Restoration, the modernization of Japan, Japan's rise as a world power, war and postwar developments.

**Term Offered:** Spring  
Multicultural Non-US Diversity

**HIST 4790 The Holocaust**

[3 credit hours]

This advanced course deals with selected aspects of the history and memory of Nazi genocide against the Jews of Europe, with special emphasis on visual and survivor sources.

**Term Offered:** Spring

**HIST 4840 Public History Practicum**

[3 credit hours]

Course provides students with hands-on experience in the practice of public history by completing a project using specialized techniques, client-oriented research and teamwork. May be repeated for credit.

**Term Offered:** Spring

**HIST 4870 Senior Honors Research I**

[3 credit hours]

Open to College Honors students, to History Honors students and to Honors students from other departments. Independent research in specific topics.

**Term Offered:** Spring, Summer, Fall

**HIST 4880 Senior Honors Research II**

[3 credit hours]

Open to College Honors students, to History Honors students and to Honors students from other departments. Independent research in specific topics.

**Term Offered:** Spring, Fall

**HIST 4940 Public History Internship**

[0-8 credit hours]

Supervised experiential learning in history.

**Prerequisites:** (HIST 2000 with a minimum grade of D- and HIST 4830 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

**HIST 4980 Special Topics**

[1-4 credit hours]

Topics selected by various instructors.

**Term Offered:** Spring, Fall

**HIST 4990 Independent Studies**

[1-4 credit hours]

Research and writing on topics designed to meet individual needs.

**Term Offered:** Spring, Summer, Fall

## Honors in History

Qualified students are invited to work for the degree citation "honors in history."

- Admission:** History majors who demonstrate unusual promise in the study of history are invited by the department to enroll in the University Honors Program; departmental honors may be pursued concurrently. Admission to departmental honors is based on the following:

- a. Sophomore standing
  - b. Overall minimum GPA of 3.0
  - c. A minimum GPA of 3.3 in all history courses (a minimum of 10 hours)
  - d. Recommendation from two professors
  - e. An interview with the Advisor
2. **Requirements:** To earn departmental honors in history, each student will satisfactorily complete the following. The required credit hours are included among the 33 hours necessary for the major in history.
- a. Honors recognition in two history courses. Honors recognition courses are regularly scheduled 3000 to 4000 level courses in which special recognition is achieved by reading and research in addition to the normal requirements of the course.
  - b. Three hours of independent research under Junior Honors Research (HIST 3870).
  - c. Six hours of thesis under Senior Honors Research (HIST 4870, HIST 4880) leading to the completion of a senior thesis.
  - d. Oral examination covering the area of the senior thesis.

## B.A. in History

The major of 33 hours in History must be distributed as follows:

Code	Title	Hours
<b>Required Courses</b> <sup>1</sup>		
HIST 2000	Methods Seminar - WAC	4
Three courses in fields of United States history		9
Three courses in fields of non-United States history		9
11 additional hours		11
<b>Total Hours</b>		<b>33</b>

<sup>1</sup> 12-16 hours (4 courses) must be at the 4000 level.

Additionally, history majors must complete a minor, a second major, or meet the requirement of 18 hours in "related fields" courses. These classes are chosen from at least 3 of the following areas: economics, political science, English and American literature, foreign language, geography, philosophy, sociology, psychology, art history, music history, women's and gender studies, or theatre history. Courses accepted to meet this requirement are listed in the student Degree Audit Report. At least 12 of the hours in related courses must be at the 3000 and 4000 levels.

The related fields course requirement may be met with completion of a minor in another discipline or a second major. However, students are required to meet with an advisor to verify and approve their selection in advance as most approved minors and second majors are in either the College of Arts and Letters or the College of Natural Sciences and Mathematics.

Student may not take P/NC for the minimum requirements for the major, but may opt for P/NC in related courses.

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

<b>First Term</b>		<b>Hours</b>
HIST 1010-1200 Arts/Humanities (History)		3
Elementary Foreign Language I		4
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
Arts/Humanities Core (Fine Arts)		3
General Elective		2
<b>Hours</b>		<b>16</b>

<b>Second Term</b>		<b>Hours</b>
HIST Major Elective		3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
MATH 1180	Reasoning With Mathematics	3
Social Sciences Core		3
<b>Hours</b>		<b>16</b>

<b>Third Term</b>		<b>Hours</b>
HIST 2000	Methods Seminar - WAC	4
Intermediate Foreign Language I or approved culture course		3
Natural Sciences Core		3
Social Sciences Core		3
Elective		3
<b>Hours</b>		<b>16</b>

<b>Fourth Term</b>		<b>Hours</b>
HIST Major Elective		6
Intermediate Foreign Language II or approved culture course		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
Social Sciences Core		3
<b>Hours</b>		<b>16</b>

<b>Fifth Term</b>		<b>Hours</b>
HIST 3000-4000: Major Elective		6
ENGL 2710-2800 Arts/Humanities (English Lit)		3
Natural Sciences Core		3
Related or Minor course		3
<b>Hours</b>		<b>15</b>

<b>Sixth Term</b>		<b>Hours</b>
HIST Major Elective 4000-level		6
Related or Minor course		6
Elective		3
<b>Hours</b>		<b>15</b>

<b>Seventh Term</b>		<b>Hours</b>
HIST Major Elective 4000-level		6
Related or Minor course		6
Elective		3
<b>Hours</b>		<b>15</b>

<b>Eighth Term</b>		<b>Hours</b>
HIST Major Elective		3
Related or Minor course		6



Elective	6
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>124</b>

- PLO 1: Interpret and evaluate secondary sources, printed primary sources, or cultural artifacts (art, television, film, etc).
- PLO 2: Compose a clear historical argument supported by adequate evidence.
- PLO 3: Write according to disciplinary standards.
- PLO 4: Use multiple perspectives, past and present, and of other cultures and peoples, in analyzing the historical past.

## Minor in History

The minor of 21 hours in History must be distributed as follows:

Code	Title	Hours
HIST 2000	Methods Seminar - WAC	4
Of the remaining 17 hours, 9 hours must be at the 4000-level.		17
<b>Total Hours</b>		<b>21</b>

## Department of Music

### Accredited by National Association of Schools of Music (NASM)

Jason Stumbo, Interim Chair  
 Norm Damschroder, Undergraduate Advisor, jazz  
 Dr. Timothy D. Brakel, Undergraduate Advisor, instrumental music education  
 Dr. Pamela Stover, Undergraduate Advisor, choral/general music education  
 Dr. David Jex, Graduate Advisor, M.M. in Performance, M.M.E.

### Advanced Placement

Please see Registrar’s website for information on Advanced Placement ([http://www.utoledo.edu/offices/registrar/student\\_records/advan\\_credits.html](http://www.utoledo.edu/offices/registrar/student_records/advan_credits.html)).

### Audition

In addition to acceptance into the university, students who wish to major in music or music education must pass an entrance audition. All applicants must meet appropriate minimum standards through this audition before being granted admission to the Department of Music. Music majors and minors are required to demonstrate proficiency in one or more of the following instruments: piano, symphonic instruments (strings, woodwinds, brass, percussion), guitar, voice, or harp. This audition is heard by a faculty jury and is closed to all except the area faculty concerned. Students are expected to be prepared to play or sing representative works of acceptable repertoire. A student may be accepted, accepted on provisional status, or denied admission to music degree work based on the entrance audition. Please visit our Web site <https://www.utoledo.edu/al/svpa/music/degrees/audition.html> or call the Department of Music office at 419.530.2448.

## Degrees Offered

The Department of Music is a fully accredited member of the National Association of Schools of Music, and its degree requirements are in accordance with the latest published regulations of that association.

Following are the undergraduate degrees offered by the Department of Music:

- Bachelor of Music (p. 95)
- Bachelor of Music Education (p. 110)
- Instrumental Minor (p. 110)
- Jazz Minor (p. 111)
- Keyboard Minor (p. 111)
- Music Business and Recording Arts Minor (p. 112)
- Music History and Literature Minor (p. 112)
- Music Technology Minor (p. 113)
- Music Theory Minor (p. 113)
- Vocal Minor (p. 113)

### MUS 1000 Performance Laboratory

[0 credit hours]  
 Required of music majors and minors. Weekly departmental student recitals. Offered as P/NC only.  
**Term Offered:** Spring, Fall

### MUS 1010 Concert Attendance

[0 credit hours]  
 Required of music majors and minors. Attend 8 department concerts and 2 non-department concerts. Offered as P/NC only.  
**Term Offered:** Spring, Fall

### MUS 1100 Introduction To Music Technology

[1 credit hour]  
 This course introduces students to music applications for sound recording, music notation, and virtual sound design. Students also discover basic tools of the trade such as microphones, speaker monitors, portable recording devices, and current trends within social media relating to self-promotion in music.  
**Term Offered:** Spring, Fall

### MUS 1200 Group Guitar For The Non-Major

[2 credit hours]  
 Basic guitar skills: note reading, chords, accompaniment, variety of musical styles. Includes rhythmic and aural training, theory and ensemble playing. Each student must provide their own guitar.  
**Term Offered:** Spring, Fall

### MUS 1250 Group Piano For The Non-Major I

[2 credit hours]  
 Classical and popular literature in a variety of styles and period will be explored. May be repeated for credit. Students may take P/NC.  
**Term Offered:** Spring, Fall



**MUS 1280 Group Voice For The Non-Major**

[2 credit hours]

Develops basic vocal techniques with attention to the principles of voice production, vowel formation, breathing, articulation and flexibility. May be repeated for credit. Open to all students regardless of major. Students may take P/NC.

**Term Offered:** Spring, Summer, Fall**MUS 1500 String Class**

[2 credit hours]

Principles, concepts, difficulties typical of stringed instruments and pedagogy addressed through performance.

**Corequisites:** MED 1000**Term Offered:** Spring, Fall**MUS 1510 Percussion Class**

[2 credit hours]

Principles, concepts, difficulties typical of percussion instruments and pedagogy addressed through performance.

**Corequisites:** MED 1000**Term Offered:** Spring, Fall**MUS 1530 Brass Class**

[2 credit hours]

Principles, concepts, difficulties typical of brass instruments and pedagogy addressed through performance.

**Corequisites:** MED 1000**Term Offered:** Spring, Fall**MUS 1550 Woodwinds Class**

[2 credit hours]

Principles, concepts, difficulties typical of woodwind instruments and pedagogy addressed through performance.

**Corequisites:** MED 1000**Term Offered:** Spring, Fall**MUS 1560 Instrumental Class**

[3 credit hours]

An overview of principles, concepts and difficulties typical of string, brass, woodwind and percussion instruments.

**Corequisites:** MED 1000**Term Offered:** Fall**MUS 1570 Piano Class For Music Majors I**

[1 credit hour]

Progressive sequence of keyboard skills courses stressing technique, repertoire, sight reading, harmonization, improvisation and transposition. Includes keyboard technology.

**Term Offered:** Spring, Summer, Fall**MUS 1580 Piano Class For Music Majors II**

[1 credit hour]

Provides instruction in keyboard skills required for the various degree programs. Progressive sequence of courses stressing technique, repertoire, sight reading, harmonization, transposition. Includes keyboard technology.

**Prerequisites:** MUS 1570 with a minimum grade of C**Term Offered:** Spring**MUS 1590 Jazz Piano Class**

[1 credit hour]

Provides instruction in jazz keyboard skills, including jazz techniques, voicings, repertoire, sight reading and harmonization.

**Prerequisites:** MUS 1570 with a minimum grade of C**Term Offered:** Spring**MUS 1610 Music Theory And Ear Training I**

[4 credit hours]

Dictation, ear training and sight singing skills in rhythm, melody and harmony. Basic theoretical skills include key signatures, clefs, notation of scales, chords and rhythm patterns. Includes computer technology.

**Term Offered:** Fall**MUS 1620 Music Theory And Ear Training II**

[4 credit hours]

Continuation of 1610. Emphasis on melody dictation and sight singing. Additional skill development in harmonizations, figured bass and study of basic forms. Includes computer technology.

**Prerequisites:** MUS 1610 with a minimum grade of C**Term Offered:** Spring**MUS 1700 Jazz Fundamentals**

[2 credit hours]

Introduction to jazz performance practices, nomenclature, chord and music notation, analysis and improvisation.

**Prerequisites:** MUS 1610 with a minimum grade of C**Term Offered:** Spring**MUS 1800 Applied Music**

[1-4 credit hours]

Private music lessons for first-year music majors and minors. Must be taken twice, and a grade of B or better is required in each semester.

**Term Offered:** Spring, Summer, Fall**MUS 1810 Applied Music For The Non-Major**

[1-2 credit hours]

Private music lessons for provisional and non-music majors. May be repeated for credit. Limited by instructor availability.

**Term Offered:** Spring, Summer, Fall**MUS 2200 Music Theory For The Non-Major**

[3 credit hours]

Introduction to the fundamentals of music, including notation, key, time signatures, rhythm, intervals, triads and chords, dominant 7th chords, cadences, and introduction to elementary aural skills. Students may take P/NC. Not for major credit.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**MUS 2210 Introduction To Music**

[3 credit hours]

The study of vocal and instrumental music from the standard repertoire primarily through listening. Previous music training is not required, but regular listening is part of the course. Not for major credit. Students may take P/NC.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**MUS 2220 History Of Jazz**

[3 credit hours]

A study of the development of jazz styles, including listening skills and historical perspectives. Because the major innovations and styles of jazz are a result of contributions from African Americans and other ethnicities, the course includes a study of how different time periods influenced the development of jazz and our culture. Students may take P/NC.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural US Diversity, OT36 Arts and Humanities

**MUS 2240 History Of Rock And Roll**

[3 credit hours]

A study of the styles, techniques and history of rock and roll. Students may take P/NC. Not for major credit.

**Term Offered:** Summer, Fall

Core Arts &amp; Humanities

**MUS 2250 Musical Diversity In The United States**

[3 credit hours]

The cultures of various ethnic groups (Native Americans, African-American, Mennonite, Moravian, Creole and others) are examined, especially as they relate to the development of folk, popular and art music styles in the United States. This course includes listening. Students may take P/NC. Not for major credit.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural US Diversity, OT36 Arts and Humanities

**MUS 2260 Electronic Music**

[2 credit hours]

Both lecture sessions and creative lab assignments. Students start with a basic introduction to the physics of music and sound, professional applications for sound design, MIDI, music-recording, and current personal music-publishing within the internet at large.

**Term Offered:** Spring, Fall**MUS 2270 Recording Techniques**

[2 credit hours]

Both lecture sessions and creative lab assignments. Students examine the physical aspects of sound and hearing. Recording transducers from microphones to monitors, mixing consoles, MIDI and music technology in the contemporary recording studio are all examined. Current personal music-publishing within the internet at large are presented.

**Term Offered:** Spring, Fall**MUS 2280 Survey Of The Music Business**

[3 credit hours]

An indepth study of the music business nationally and internationally. Music making, publishing, copyright law, management, broadcast in radio and film, and business affairs are examined.

**Term Offered:** Summer, Fall**MUS 2410 Music History And Literature I: World Music And Jazz**

[3 credit hours]

A study of music from various world cultures and jazz. A special emphasis is placed on developing listening skills.

**Term Offered:** Spring**MUS 2420 Cultures And Music Of Non-Western Styles**

[3 credit hours]

An introduction to world music. The course provides overviews of the geography, the social and political environments, the religious practices and spiritual beliefs, and the cultural heritages of people and countries, such as Central Asia, South Asia, Africa, Caribbean, Korea, Japan, Latin America, Native American, Jazz in America, and American Pop, and American Country. Student may take P/NC

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

**MUS 2520 Intro to Voice and Diction 1**

[2 credit hours]

Intro to Voice and Diction I: Voice for Freshman and Vocal Diction - a combined course designed to train the singer in how to function in voice lessons through skill building sets such as; develop a process to learn repertoire, learn and understand International Phonetic Alphabet sounds and demonstrate that knowledge through practical application to vocal technique and repertoire. This creates contextual learning, while building a foundation of experiential knowledge for future training.

**Corequisites:** MUS 1800**Term Offered:** Fall**MUS 2530 Diction For Singers I**

[1 credit hour]

International Phonetic Alphabet mastery; pronunciation of English, German, Latin, Italian and French in relation to art song and aria form, emphasis on the sound of the language. Meets two hours per week.

**Term Offered:** Fall**MUS 2540 Diction For Singers II**

[1 credit hour]

Continuation of MUS 2530. IPA; pronunciation of German and English in relation to art song and aria form; emphasis on the sound of the language. Meets two hours per week.

**Prerequisites:** MUS 2530 with a minimum grade of C**Term Offered:** Spring**MUS 2560 Introduction to Voice and Diction 2**

[2 credit hours]

Intro to Voice and Diction II: Voice for Freshman and Vocal Diction – The second class designed to build upon the skills discussed and demonstrated in Intro to Voice and Diction I. This class will concentrate on the continued skills required to learn more advanced vocal repertoire such as the operatic aria or Romantic song cycle. Advanced, International Phonetic Alphabet sounds and symbols will be part of tools used to aid in the pronunciation and recognition in German and French classical repertoire. More advanced concepts such as acoustical physics and resonance in the human instrument will also be introduced and discussed. This creates contextual learning, while building a foundation of experiential knowledge for future training.

**Prerequisites:** MUS 2520 with a minimum grade of D-**Corequisites:** MUS 1800**Term Offered:** Spring

**MUS 2570 Piano Class For Music Majors III**

[1 credit hour]

Provides instruction in keyboard skills required for the various degree programs. Progressive sequence of courses stressing technique, repertoire, sight reading, harmonization, improvisation and transposition. Includes keyboard technology.

**Prerequisites:** MUS 1580 with a minimum grade of C**Term Offered:** Fall**MUS 2580 Piano Class For Music Majors IV**

[1 credit hour]

Provides instruction in keyboard skills required for the various degree programs. Progressive sequence stressing technique, repertoire, sight reading, harmonization, improvisation and transposition. Includes keyboard technology.

**Prerequisites:** MUS 2570 with a minimum grade of C**Term Offered:** Spring**MUS 2590 Class Piano For Piano Majors**

[2 credit hours]

MUS-2590 KEYBOARD FUNDAMENTALS for PIANO MAJORS, to be taken in conjunction with music theory. Fundamental keyboard skills including harmony, technique, transposition, improvisation, sight reading, score reading, and ensemble playing.

**Corequisites:** MUS 1610, MUS 2610**MUS 2610 Music Theory And Ear Training III**

[4 credit hours]

Continuation of 1620. Students develop proficiency in all musical elements through analytical, written and aural studies. Primary materials are the common practice period literature and small formal units. Includes computer technology.

**Prerequisites:** MUS 1620 with a minimum grade of C**Term Offered:** Fall**MUS 2620 Music Theory And Ear Training IV**

[4 credit hours]

Continuation of 2610. Students are introduced to contemporary topics, styles and music through analysis and creative assignments. Dictation and sight-singing studies will also develop topics from MUS 2610. Includes computer technology.

**Prerequisites:** MUS 2610 with a minimum grade of C**Term Offered:** Spring**MUS 2700 Jazz Improvisation I**

[2 credit hours]

Practical application of beginning jazz improvisation techniques as applied to modal, blues and simple jazz standards. Basic chord-scale relationships, ear training, and style analysis is presented.

**Prerequisites:** MUS 1700 with a minimum grade of C**Term Offered:** Fall**MUS 2710 Jazz Improvisation II**

[2 credit hours]

Practical application of intermediate jazz improvisation techniques as applied to jazz standards and bebop playing.

**Prerequisites:** MUS 2700 with a minimum grade of C**Term Offered:** Spring**MUS 2800 Applied Music**

[1-4 credit hours]

Private music lessons for sophomore music majors.

**Prerequisites:** MUS 1800 with a minimum grade of B**Term Offered:** Spring, Summer, Fall**MUS 3010 University Band**

[1 credit hour]

The Rocket Marching Band appears at all home football games during the fall semester. Any UT student with previous experience may participate. Contact the instructor for audition information.

**Term Offered:** Fall**MUS 3020 Jazz Ensemble**

[1 credit hour]

Students rehearse and perform a diverse repertoire for large jazz ensemble. Open to all students by audition in the first week of each semester and/or permission of instructor.

**Term Offered:** Spring, Fall**MUS 3040 University Wind Ensemble**

[1 credit hour]

Open to a limited number of qualified students.

**MUS 3050 Chamber Music Ensembles**

[1 credit hour]

The study and performance of chamber music literature in classical or jazz styles. By permission of instructor.

**Term Offered:** Spring, Fall**MUS 3060 Symphonic Band**

[1 credit hour]

Students rehearse and perform a diverse concert band repertoire. Open to all students through audition or permission of instructor.

**Term Offered:** Spring, Fall**MUS 3070 Varsity Band**

[1 credit hour]

Students rehearse and perform a diverse athletic band repertoire. Open to all students through audition or permission of instructor.

**Term Offered:** Spring, Fall**MUS 3090 University Orchestra**

[1 credit hour]

Performs a variety of symphonic repertoire. Open to all students through audition.

**Term Offered:** Spring, Fall**MUS 3100 Introduction to Opera I**

[1 credit hour]

Introducing young singers to the art form of opera through a blended model of lecture and skill building participation exercises.

**Term Offered:** Spring, Fall**MUS 3120 Intro to Opera II**

[1 credit hour]

Part II of the Intro to Opera classes that prepare singers in the art form of opera through a blended model of lecture and skill building participation exercises as well as participation in the staged production by helping with production aspects such as costumes, set building, marketing, make-up, and super-titles.

**Prerequisites:** MUS 3100 with a minimum grade of D-**Term Offered:** Spring, Fall

**MUS 3130 University Chorus**

[1 credit hour]

This non-auditioned mixed (SATB) choral ensemble is open to any student. Performing music in a variety of styles, this ensemble places a primary focus on developing musicianship and basic vocal technique.

**Term Offered:** Spring, Summer, Fall**MUS 3140 Concert Chorale**

[1 credit hour]

This large, auditioned, mixed (SATB) choral ensemble is made up of 40-60 singers. This group is primarily made up of non-music majors who excel in vocal technique and production and who display high-level musical ability. They perform regularly on and off campus. This ensemble requires an audition and instructor approval.

**Term Offered:** Spring, Fall**MUS 3150 Jazz Vocalstra**

[1 credit hour]

Students rehearse and perform traditional vocal Jazz literature and Vocalese. Open to qualified students by audition at the beginning of each semester and/or permission of instructor.

**Term Offered:** Spring, Fall**MUS 3160 Rocket Choristers**

[1 credit hour]

This non-auditioned treble voice (SSAA) choral ensemble is open to any student. Performing music in a variety of styles, this ensemble places a primary focus on developing musicianship and basic vocal technique.

**Term Offered:** Spring, Fall**MUS 3170 Chamber Singers**

[1 credit hour]

This auditioned mixed (SATB) choral ensemble is the premiere choral ensemble at the University of Toledo. With a focus on advanced vocal techniques and performance, this ensemble requires an audition and instructor approval.

**Term Offered:** Spring, Summer, Fall**MUS 3180 Glee Club**

[1 credit hour]

This non-auditioned Tenor/Bass voiced (TTBB) choral ensemble is open to any student. Performing music in a variety of styles, this ensemble places a primary focus on developing musicianship and basic vocal technique.

**Term Offered:** Spring, Fall**MUS 3190 Opera Workshop**

[1 credit hour]

Performs both contemporary and classic Opera. Open to a limited number of qualified students.

**Term Offered:** Spring, Fall**MUS 3200 Opera Production**

[1 credit hour]

Audition only ensemble, with pre-requisites required of Intro to Opera I and Intro to Opera II. This course is designed to provide students with a complete experience in developing the craft of opera from all aspects including marketing, backstage, on stage and the front of the house. This is an advanced performance course for upper division vocal performance students. Building on the skills and experience from (MUS 3100) Intro to Opera I and (MUS 3120) Intro to Opera II this course is designed to provide real-life professional experience in opera production.

**Prerequisites:** MUS 3100 with a minimum grade of D- and MUS 3120 with a minimum grade of D-**Term Offered:** Spring, Fall**MUS 3260 Advanced Electronic Music**

[3 credit hours]

Both lecture sessions and creative lab assignments. Pre-requisite is MUS 2260 or by permission of the instructor. In particular, the current computer application Reason is examined and put to test in fine detail. Students will use the application in both sound-recording and virtual, MIDI instrument production. Lab productions are published.

**Prerequisites:** MUS 2260 with a minimum grade of C**Term Offered:** Spring, Fall**MUS 3270 Advanced Recording Techniques**

[2 credit hours]

Both lecture sessions and creative lab assignments. Pre-requisite is MUS 2270 or by permission of the instructor. Material emphasizes music production in a professional recording studio. Students collaborate in the tracking, mixing, and mastering of complete song titles both originals and covers. Students will self-publish completed songs.

**Prerequisites:** MUS 2270 with a minimum grade of C**Term Offered:** Spring, Fall**MUS 3410 Music History And Literature II**

[3 credit hours]

A study of the literature, composers, theorists, trends and musical style of Western Music from Plainchant through Early Classic.

**Term Offered:** Fall**MUS 3420 Music History And Literature III**

[3 credit hours]

An intensive study of the music of the Late Classic period to the present day through the examination of major trends and styles.

**Term Offered:** Spring**MUS 3450 Jazz History And Literature**

[3 credit hours]

An in-depth study of jazz styles, trends, performers and composers geared for music majors.

**Term Offered:** Spring**MUS 3500 Conducting**

[2 credit hours]

Basic baton techniques and rehearsal routine applicable to both vocal and instrumental conducting. Preparation of scores and opportunity for conducting experience with student groups. Includes MUS 1000:002 and video recording technology.

**Prerequisites:** MUS 1620 with a minimum grade of C**Term Offered:** Fall

**MUS 3510 Choral Conducting**

[2 credit hours]

Conducting techniques and rehearsal routine especially concerned with choral groups. Opportunities to direct choral groups. Includes MUS 1000:002 and video recording technology.

**Term Offered:** Spring, Summer**MUS 3520 Instrumental Conducting**

[2 credit hours]

Conducting techniques and rehearsal routine especially concerned with instrumental ensembles. Opportunities to direct student instrumental groups. Includes MUS 1000:002 and video recording technology.

**Prerequisites:** MUS 3500 with a minimum grade of C**Term Offered:** Spring**MUS 3530 Marching Band Techniques**

[1 credit hour]

The pedagogy and administration of marching bands in secondary schools. Includes practical laboratory experiences and use of relevant technology and software.

**Term Offered:** Fall**MUS 3550 Vocal Pedagogy and Literature 1**

[2 credit hours]

This class will provide students with a twofold practical application of how to teach varied forms of vocal literature as it relates to pedagogical strategies and vocal technique. This class also includes a Vocal Literature review from the Renaissance period to the 18th century Classical repertoire. This review of Vocal Literature would apply to pedagogical techniques such as stylistic considerations, phrasing, range, language and vocal demands through breath and support..

**Prerequisites:** MUS 2410 with a minimum grade of D-**Term Offered:** Spring, Fall**MUS 3560 Jazz Pedagogy And Conducting**

[2 credit hours]

An in-depth study of Jazz pedagogical materials and methods as well as rehearsal and conducting techniques.

**Prerequisites:** MUS 2620 with a minimum grade of C**Term Offered:** Spring, Fall**MUS 3590 Piano Pedagogy**

[2 credit hours]

Exploration of techniques and materials for comprehensive, private and group instruction.

**Term Offered:** Spring, Fall**MUS 3610 Form And Analysis**

[3 credit hours]

The study of musical structures: the theme, the motive, the phrase and analysis of homophonic and polyphonic forms and procedures.

**Prerequisites:** MUS 2620 with a minimum grade of C**Term Offered:** Fall**MUS 3630 Instrumentation**

[3 credit hours]

A study of wind, percussion and string instrumentation; scoring for small ensembles, band and orchestra. Opportunities for performances of student scores by university organizations. Includes computer technology.

**Prerequisites:** MUS 2620 with a minimum grade of C**Term Offered:** Spring**MUS 3650 Jazz Arranging And Composition I**

[3 credit hours]

Scoring for contemporary jazz ensembles. A study of jazz notations, voicing, orchestration and composition for small jazz groups and the rhythm section.

**Prerequisites:** MUS 2620 with a minimum grade of C**Term Offered:** Fall**MUS 3660 Jazz Arranging And Composition II**

[3 credit hours]

Advanced scoring for contemporary jazz ensembles. A study of notations, voicing, orchestration and composition for large jazz groups.

**Prerequisites:** MUS 3650 with a minimum grade of C**Term Offered:** Spring**MUS 3700 Jazz Improvisation III**

[2 credit hours]

Practical application of advanced jazz improvisation techniques as applied to post-bop, fusion and avant-garde playing.

**Prerequisites:** MUS 2710 with a minimum grade of C**Term Offered:** Fall**MUS 3710 Jazz Improvisation IV**

[2 credit hours]

Practical application of jazz improvisation techniques as applied to contemporary and chromatic jazz composition and performance.

**Prerequisites:** MUS 3700 with a minimum grade of C**Term Offered:** Spring**MUS 3800 Applied Music**

[1-4 credit hours]

Private music lessons for junior music majors.

**Prerequisites:** MUS 2800 with a minimum grade of B**Term Offered:** Spring, Summer, Fall**MUS 3810 Recital**

[1 credit hour]

A juried public performance of no more than 25-minutes of musical compositions selected from repertoire studied in MUS 3800 and in consultation with the student's major applied professor.

**Prerequisites:** MUS 2800 with a minimum grade of C**Corequisites:** MUS 3800**Term Offered:** Spring, Fall**MUS 4410 Instrumental Music Literature**

[3 credit hours]

Course will examine the development of the orchestral and chamber repertoire, from their origins to the present day.

**Prerequisites:** (MUS 2410 with a minimum grade of C and MUS 2420 with a minimum grade of C)**Term Offered:** Spring**MUS 4420 Vocal Pedagogy and Literature 2**

[2 credit hours]

This course is the second class in a two-semester sequence. This class will continue to build upon the twofold practical applications of how to teach varied forms of vocal literature as it relates to pedagogical strategies and vocal technique.

**Prerequisites:** MUS 3550 with a minimum grade of D-**Term Offered:** Spring, Fall

**MUS 4450 Keyboard Literature**

[3 credit hours]

A survey of piano or organ/harpsichord literature from earliest publications to the present. Emphasis on a particular period or genre at the discretion of the instructor.

**Term Offered:** Spring, Fall

**MUS 4620 Counterpoint: Introduction**

[3 credit hours]

The study of counterpoint in modal, tonal, and contemporary styles. Studies include contrapuntal techniques such as imitation, canon, invertible counterpoint, non-harmonics and the balance of consonance and dissonance. Formal constructions studied include motets, canons, inventions, and fugues.

**Prerequisites:** MUS 2620 with a minimum grade of C

**Term Offered:** Spring

**MUS 4690 Seminar In Music Composition**

[2 credit hours]

May be repeated, but maximum accumulated credit is six hours toward graduation. Beginning composition including writing in the smaller musical forms. Opportunity for performance of original student compositions.

**Prerequisites:** MUS 2620 with a minimum grade of C

**Term Offered:** Spring, Fall

**MUS 4800 Applied Music**

[1-4 credit hours]

Private music lessons for seniors.

**Prerequisites:** MUS 3800 with a minimum grade of B

**Term Offered:** Spring, Summer, Fall

**MUS 4810 Recital**

[1 credit hour]

A juried public performance of no more than 50-minutes of musical compositions selected from repertoire studied in MUS 4800 and in consultation with a student's major applied professor.

**Prerequisites:** MUS 4800 with a minimum grade of B

**Corequisites:** MUS 4800

**Term Offered:** Spring, Fall

**MUS 4850 Advanced Vocal Pedagogy**

[3 credit hours]

An upper-division level course designed to more intricately address pedagogical strategies for vocal instruction, with an emphasis on surveying methods and research in singing voice specialization as it relates to vocal dysfunction and correction within the context of vocal instruction. This course aims to train future singer/vocal instructors to appropriately teach students of all ages and abilities, as well as diagnose and correct common vocal faults and dysphonias.

**Prerequisites:** MUS 3550 with a minimum grade of D- and MUS 4420 with a minimum grade of D-

**Term Offered:** Spring

**MUS 4980 Seminar: Special Topics**

[1-3 credit hours]

Critical inquiry into specific topics through lectures, class seminar reports and discussion. Seminar topics announced in semester schedule of classes.

**Term Offered:** Spring, Summer, Fall

**MUS 4990 Special Projects**

[1-3 credit hours]

Designed to meet the needs of individual students who wish to pursue projects in the area of music.

**Term Offered:** Spring, Summer, Fall

All music majors have an opportunity to qualify for a departmental honors citation in music if they maintain a minimum cumulative GPA of 3.0 through the junior year and at least a 3.5 average in 12 hours of work chosen from the following courses:

Code	Title	Hours
MUS 3450	Jazz History And Literature	3
MUS 3470		3
MUS 3610	Form And Analysis	3
MUS 3630	Instrumentation	3
MUS 3650	Jazz Arranging And Composition I	3
MUS 3660	Jazz Arranging And Composition II	3
MUS 4410	Instrumental Music Literature	3
MUS 4420	Vocal Pedagogy and Literature 2	2
MUS 4450	Keyboard Literature	3
MUS 4460		
MUS 4620	Counterpoint: Introduction	3
MUS 4690	Seminar In Music Composition (may be taken only once toward honors credit)	2
MUS 4980	Seminar: Special Topics (may be an "honors only" section)	1-3

Students interested in honors recognition should complete an intent (to qualify) form available in the music office at the beginning of their sophomore year. In the senior year, the faculty honors committee will invite qualified students to undertake a special three-hour project (MUS 4990) on a topic approved by the honors in music faculty. Each student will work with an assigned Advisor and present on oral defense of the completed project. Satisfactory work will be rewarded by an honors citation recorded in the student's permanent file and in the proper graduation bulletin.

## Bachelor of Music

The Bachelor of Music degree is designed to prepare the student for a professional career in performance. The student may pursue one of a number of concentrations. Students may be admitted to this program only with the approval of the music faculty, usually determined by a special audition. The requirements for each of the bachelor of music degree concentrations include non-music courses (see General catalog section on the Core Curriculum (<https://catalog.utoledo.edu/general-section/university-undergraduate-core-curriculum/>)), core music courses and concentration courses.

### Concentrations:

- Voice (p. 96)
- Piano (p. 96)
- Strings (p. 97)
- Guitar (p. 97)
- Wind and Percussion (p. 98)



- Instrumental Jazz (p. 98)
- Vocal Jazz (p. 99)
- Instrumental and Vocal Jazz with an Emphasis in Music Business and Recording Arts (p. 99)

## Course List for Concentration in Voice

Code	Title	Hours
<b>Required Core Music Courses</b>		
<i>Performance Laboratory</i>		
MUS 1000	Performance Laboratory (eight semesters) <sup>1</sup>	0
<i>Concert Attendance</i>		
MUS 1010	Concert Attendance (six semesters) <sup>1</sup>	0
<i>Music Theory</i>		
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4
MUS 1620	Music Theory And Ear Training II <sup>2</sup>	4
MUS 2610	Music Theory And Ear Training III <sup>2</sup>	4
MUS 2620	Music Theory And Ear Training IV <sup>2</sup>	4
MUS 3610	Form And Analysis	3
MUS 4620	Counterpoint: Introduction	3
<i>Music History and Literature</i> <sup>2</sup>		
MUS 2410	Music History And Literature I: World Music And Jazz	3
MUS 3410	Music History And Literature II	3
MUS 3420	Music History And Literature III	3
<i>Conducting</i>		
MUS 3500	Conducting	2
<i>Applied Music in Voice</i>		
Select each course twice: <sup>3</sup>		30
MUS 1800	Applied Music	
MUS 2800	Applied Music	
MUS 3800	Applied Music	
MUS 4800	Applied Music	
<i>Junior and Senior Recitals</i>		
MUS 3810	Recital	1
MUS 4810	Recital	1
<b>Voice Concentration Courses</b>		
Select 3 hours of appropriate courses (determined by placement test) of the following:		3
MUS 1570	Piano Class For Music Majors I <sup>2</sup>	
MUS 1580	Piano Class For Music Majors II <sup>2</sup>	
MUS 2570	Piano Class For Music Majors III <sup>2</sup>	
MUS 2580	Piano Class For Music Majors IV <sup>2</sup>	
Select eight semesters of the following: <sup>4</sup>		4
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble	
MUS 2530	Diction For Singers I	1
MUS 2540	Diction For Singers II	1
MUS 3550	Vocal Pedagogy and Literature 1	2

MUS 4420	Vocal Pedagogy and Literature 2	2
Select at least one semester each of French and German <sup>5</sup>		8
Electives. Select two hours of upper-division academic music courses		2
<b>Total Hours</b>		<b>88</b>

## Course list for Concentration in Piano

Code	Title	Hours
<b>Required Core Music Courses</b>		
<i>Performance Laboratory</i>		
MUS 1000	Performance Laboratory (eight semesters) <sup>1</sup>	0
<i>Concert Attendance</i>		
MUS 1010	Concert Attendance (six semesters) <sup>1</sup>	0
<i>Music Theory</i>		
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4
MUS 1620	Music Theory And Ear Training II <sup>2</sup>	4
MUS 2610	Music Theory And Ear Training III <sup>2</sup>	4
MUS 2620	Music Theory And Ear Training IV <sup>2</sup>	4
MUS 3610	Form And Analysis	3
MUS 4620	Counterpoint: Introduction	3
<i>Music History and Literature</i> <sup>2</sup>		
MUS 2410	Music History And Literature I: World Music And Jazz	3
MUS 3410	Music History And Literature II	3
MUS 3420	Music History And Literature III	3
<i>Conducting</i>		
MUS 3500	Conducting	2
<i>Applied Music in Piano</i>		
Select each course twice: <sup>3</sup>		30
MUS 1800	Applied Music	
MUS 2800	Applied Music	
MUS 3800	Applied Music	
MUS 4800	Applied Music	
<i>Junior and Senior Recitals</i>		
MUS 3810	Recital	1
MUS 4810	Recital	1
<b>Required Piano Concentration Courses</b>		
Select four semesters of the following: <sup>6</sup>		4
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble	
MUS 2590	Class Piano For Piano Majors	2
MUS 3580		2
MUS 3590	Piano Pedagogy	2
MUS 4450	Keyboard Literature	3
<i>Electives. Select 5 hours of upper level academic music courses</i>		5
<b>Total Hours</b>		<b>83</b>



## Course list for Concentration in Strings

Code	Title	Hours
<b>Required Core Music Courses</b>		
<i>Performance Laboratory</i>		
MUS 1000	Performance Laboratory (eight semesters) <sup>1</sup>	0
<i>Concert Attendance</i>		
MUS 1010	Concert Attendance (six semesters) <sup>1</sup>	0
<i>Music Theory</i>		
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4
MUS 1620	Music Theory And Ear Training II <sup>2</sup>	4
MUS 2610	Music Theory And Ear Training III <sup>2</sup>	4
MUS 2620	Music Theory And Ear Training IV <sup>2</sup>	4
MUS 3610	Form And Analysis	3
MUS 4620	Counterpoint: Introduction	3
<i>Music History and Literature</i> <sup>2</sup>		
MUS 2410	Music History And Literature I: World Music And Jazz	3
MUS 3410	Music History And Literature II	3
MUS 3420	Music History And Literature III	3
<i>Conducting</i>		
MUS 3500	Conducting	2
<i>Applied Music on Major Instrument</i>		
Select each course twice: <sup>3</sup>		30
MUS 1800	Applied Music	
MUS 2800	Applied Music	
MUS 3800	Applied Music	
MUS 4800	Applied Music	
<b>Junior and Senior Recitals</b>		
MUS 3810	Recital	1
MUS 4810	Recital	1
<b>Required String Concentration Courses</b>		
Select 3 hours of appropriate courses (determined by placement test) of the following: <sup>2</sup>		3
MUS 1570	Piano Class For Music Majors I	
MUS 1580	Piano Class For Music Majors II	
MUS 2570	Piano Class For Music Majors III	
MUS 2580	Piano Class For Music Majors IV	
Take eight semesters: <sup>7</sup>		4
MUS 3090	University Orchestra	
MUS 1500	String Class	2
MUS 4410	Instrumental Music Literature	3
Electives. Select 5 hours of upper division academic music courses		5
<b>Total Hours</b>		<b>82</b>

## Course List for Concentration in Guitar

Code	Title	Hours
<b>Required Core Music Courses</b>		
<i>Performance Laboratory</i>		

MUS 1000	Performance Laboratory (eight semesters) <sup>1</sup>	0
<i>Concert Attendance</i>		
MUS 1010	Concert Attendance (six semesters) <sup>1</sup>	0
<i>Music Theory</i>		
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4
MUS 1620	Music Theory And Ear Training II <sup>2</sup>	4
MUS 2610	Music Theory And Ear Training III <sup>2</sup>	4
MUS 2620	Music Theory And Ear Training IV <sup>2</sup>	4
<i>Music History and Literature</i> <sup>2</sup>		
MUS 3410	Music History And Literature II	3
MUS 2420	Cultures And Music Of Non-Western Styles	3
MUS 3420	Music History And Literature III	3
<i>Conducting</i>		
MUS 3500	Conducting	2
<i>Applied Music on Guitar</i>		
Select each course twice: <sup>3</sup>		30
MUS 1800	Applied Music	
MUS 2800	Applied Music	
MUS 3800	Applied Music	
MUS 4800	Applied Music	
<i>Junior and Senior Recitals</i>		
MUS 3810	Recital	1
MUS 4810	Recital	1
<b>Required Guitar Concentration Courses</b>		
Select 3 hours of appropriate piano courses (determined by placement test) from the following: <sup>2</sup>		3
MUS 1570	Piano Class For Music Majors I	
MUS 1580	Piano Class For Music Majors II	
MUS 1800	Applied Music (Jazz Piano) or MUS 257C(Piano Class For Music Majors III)	
MUS 3570		
MUS 3650	Jazz Arranging And Composition I	3
MUS 4460		
MUS 1700	Jazz Fundamentals	2
MUS 1100	Introduction To Music Technology	1
EFSB 3500	Introduction To Entrepreneurship for Non-Business Students	3
Ensembles (only 4 cr. count toward graduation)		4
MUS 3050	Chamber Music Ensembles (MUS 3050:036 - take 4 semesters)	
MUS 3130	University Chorus (take 2 semesters)	
Take four semesters from: MUS 3050 Contemporary Commercial Music Ensemble; MUS 3020 Jazz Ensemble; MUS 3050 Jazz Combo; other ensembles per advisor approval		
<b>Total Hours</b>		<b>75</b>

<sup>1</sup> Transfer students will be required to complete a number of semesters proportionate to credits transferred.

<sup>2</sup> A grade of C or better is required.

<sup>3</sup> A grade of B or better is required in each course.



## Course List for Concentration in Wind and Percussion

Code	Title	Hours
<b>Required Core Music Courses</b>		
<i>Performance Laboratory</i>		
MUS 1000	Performance Laboratory (eight semesters) <sup>1</sup>	0
<i>Concert Attendance</i>		
MUS 1010	Concert Attendance (six semesters) <sup>1</sup>	0
<i>Music Theory</i>		
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4
MUS 1620	Music Theory And Ear Training II <sup>2</sup>	4
MUS 2610	Music Theory And Ear Training III <sup>2</sup>	4
MUS 2620	Music Theory And Ear Training IV <sup>2</sup>	4
MUS 3610	Form And Analysis	3
MUS 4620	Counterpoint: Introduction	3
<i>Music History and Literature</i> <sup>2</sup>		
MUS 2410	Music History And Literature I: World Music And Jazz	3
MUS 3410	Music History And Literature II	3
MUS 3420	Music History And Literature III	3
<i>Conducting</i>		
MUS 3500	Conducting	2
<i>Applied Music on Major Instrument</i>		
Select each course twice: <sup>3</sup>		30
MUS 1800	Applied Music	
MUS 2800	Applied Music	
MUS 3800	Applied Music	
MUS 4800	Applied Music	
<i>Junior and Senior Recitals</i>		
MUS 3810	Recital	1
MUS 4810	Recital	1
<b>Required Wind and Percussion Concentration Courses</b>		
Select 3 hours of appropriate courses (determined by placement test) of the following: <sup>2</sup>		3
MUS 1570	Piano Class For Music Majors I	
MUS 1580	Piano Class For Music Majors II	
MUS 2570	Piano Class For Music Majors III	
MUS 2580	Piano Class For Music Majors IV	
Select eight semesters of the following: <sup>9</sup>		4
MUS 3010	University Band	
MUS 3020	Jazz Ensemble	
MUS 3090	University Orchestra	
Take two semesters, select from:		
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
Take for four semesters:		
MUS 3050	Chamber Music Ensembles (Ensemble must include student's major instrument)	

MUS 4410	Instrumental Music Literature	3
Select two hours of the following:		2
MUS 1510	Percussion Class	
MUS 1530	Brass Class	
MUS 1550	Woodwinds Class	
Select 4 hours of upper division academic music courses		4
<b>Total Hours</b>		<b>81</b>

## Course List for Instrumental Jazz Concentration

Code	Title	Hours
<b>Required Core Music Courses</b>		
<i>Performance Laboratory</i>		
MUS 1000	Performance Laboratory (eight semesters) <sup>1</sup>	0
<i>Concert Attendance</i>		
MUS 1010	Concert Attendance (eight semesters) <sup>1</sup>	0
<i>Music Theory</i>		
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4
MUS 1620	Music Theory And Ear Training II <sup>2</sup>	4
MUS 2610	Music Theory And Ear Training III <sup>2</sup>	4
MUS 2620	Music Theory And Ear Training IV <sup>2</sup>	4
MUS 3650	Jazz Arranging And Composition I	3
MUS 3660	Jazz Arranging And Composition II	3
<i>Music History and Literature</i>		
MUS 3410	Music History And Literature II <sup>2</sup>	3
MUS 3420	Music History And Literature III <sup>2</sup>	3
MUS 3450	Jazz History And Literature	3
<i>Jazz Pedagogy and Conducting</i>		
MUS 3560	Jazz Pedagogy And Conducting	2
<i>Applied Music</i>		
MUS 2800	Applied Music (Classical) <sup>10</sup>	8
MUS 4800	Applied Music (Jazz) <sup>11</sup>	18
MUS 1570	Piano Class For Music Majors I <sup>2</sup>	1
MUS 1590	Jazz Piano Class <sup>2</sup>	1
MUS 1800	Applied Music (MUS 1800:065 Applied Jazz Piano)	2
<i>Junior and Senior Recitals</i>		
MUS 3810	Recital	1
MUS 4810	Recital	1
<b>Required Courses for the Instrumental Jazz Concentration</b>		
Take for 8 semesters: <sup>12</sup>		4
MUS 3020	Jazz Ensemble	
Select one semester of one of the following: <sup>12</sup>		
MUS 3140	Concert Chorale	
MUS 3150	Jazz Vocalstra	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
<i>Jazz Improvisation</i>		
Take three semesters: <sup>12</sup>		

MUS 3050	Chamber Music Ensembles (3050:137 Jazz Combo)	
MUS 1700	Jazz Fundamentals	2
MUS 2700	Jazz Improvisation I	2
MUS 2710	Jazz Improvisation II	2
MUS 3700	Jazz Improvisation III	2
MUS 3710	Jazz Improvisation IV	2
MUS 2270	Recording Techniques	2
Electives. Select one hour of upper division academic music courses		1
<b>Total Hours</b>		<b>82</b>

## Course List for Vocal Jazz Concentration

Code	Title	Hours
<b>Required Core Music Courses</b>		
<i>Performance Laboratory</i>		
MUS 1000	Performance Laboratory (eight semesters) <sup>1</sup>	0
<i>Concert Attendance</i>		
MUS 1010	Concert Attendance (eight semesters) <sup>1</sup>	0
<i>Music Theory</i>		
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4
MUS 1620	Music Theory And Ear Training II <sup>2</sup>	4
MUS 2610	Music Theory And Ear Training III <sup>2</sup>	4
MUS 2620	Music Theory And Ear Training IV <sup>2</sup>	4
MUS 3650	Jazz Arranging And Composition I	3
MUS 3660	Jazz Arranging And Composition II	3
<i>Music History and Literature</i>		
MUS 3410	Music History And Literature II <sup>2</sup>	3
MUS 3420	Music History And Literature III <sup>2</sup>	3
MUS 3450	Jazz History And Literature	3
<i>Jazz Pedagogy and Conducting</i>		
MUS 3560	Jazz Pedagogy And Conducting	2
<i>Applied Music</i>		
MUS 2800	Applied Music (Classical) <sup>10</sup>	8
MUS 4800	Applied Music (Jazz) <sup>11</sup>	18
MUS 1570	Piano Class For Music Majors I <sup>2</sup>	1
MUS 1590	Jazz Piano Class <sup>2</sup>	1
MUS 1800	Applied Music (MUS 1800:065 Applied Jazz Piano)	2
<i>Junior and Senior Recitals</i>		
MUS 3810	Recital	1
MUS 4810	Recital	1
<b>Required Courses for the Vocal Jazz Concentration</b>		
Take for 8 semesters: <sup>13</sup>		
MUS 3150	Jazz Vocalstra	
Take for four semesters: <sup>13</sup>		
MUS 3050	Chamber Music Ensembles (3050:137 Jazz Combo)	
or MUS 302C Jazz Ensemble		
<i>Jazz Improvisation</i>		
MUS 1700	Jazz Fundamentals	2

MUS 2700	Jazz Improvisation I	2
MUS 2710	Jazz Improvisation II	2
MUS 3700	Jazz Improvisation III	2
MUS 3710	Jazz Improvisation IV	2
MUS 2270	Recording Techniques	2
Electives. Select one hour of upper division academic music courses		1
<b>Total Hours</b>		<b>82</b>

## Course List for Instrumental and Vocal Jazz Concentration with an Emphasis in Music Business and Recording Arts

Code	Title	Hours
<b>Required Core Music Courses</b>		
<i>Performance Laboratory</i>		
MUS 1000	Performance Laboratory (eight semesters) <sup>1</sup>	0
<i>Concert Attendance</i>		
MUS 1010	Concert Attendance (eight semesters) <sup>1</sup>	0
<i>Music Theory</i>		
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4
MUS 1620	Music Theory And Ear Training II <sup>2</sup>	4
MUS 3650	Jazz Arranging And Composition I	3
MUS 3660	Jazz Arranging And Composition II	3
<i>Music History and Literature</i>		
MUS 3410	Music History And Literature II <sup>2</sup>	3
MUS 3420	Music History And Literature III <sup>2</sup>	3
MUS 3450	Jazz History And Literature	3
<i>Jazz Pedagogy and Conducting</i>		
MUS 3560	Jazz Pedagogy And Conducting	2
<i>Applied Music</i>		
MUS 1570	Piano Class For Music Majors I <sup>2</sup>	1
MUS 1590	Jazz Piano Class <sup>2</sup>	1
MUS 2800	Applied Music (MUS 2800:065 Applied Jazz Piano (two semesters))	2
MUS 4800	Applied Music (Jazz) <sup>14</sup>	16
<i>Junior Recital</i>		
MUS 3810	Recital	1
<b>Required Courses for Instrumental and Vocal Jazz Concentration with an Emphasis in Music Business and Recording Arts</b>		
<i>Music Business</i>		
MUS 2280	Survey Of The Music Business	3
MUS 3280		
MUS 3290		1
MUS 4290		6
<i>Jazz Improvisation</i>		
MUS 1700	Jazz Fundamentals	2
MUS 2700	Jazz Improvisation I	2
MUS 2710	Jazz Improvisation II	2
MUS 3700	Jazz Improvisation III	2
MUS 3710	Jazz Improvisation IV	2

Take for eight semesters <sup>13</sup>		4
MUS 3150	Jazz Vocalstra (Eight Semesters)	
Take for four semesters, select from: <sup>13</sup>		
MUS 3050	Chamber Music Ensembles (3050:137 Jazz Combo)	
	or MUS 3020 Jazz Ensemble	
<b>Recording Techniques</b>		
MUS 2270	Recording Techniques	2
MUS 3270	Advanced Recording Techniques	2
<i>Electives. Select two hours of upper division academic music courses</i>		2
<b>Total Hours</b>		<b>76</b>

<sup>1</sup> Transfer students will be required to complete a number of semesters proportionate to credits transferred.

<sup>2</sup> A grade of C or better is required.

<sup>3</sup> A grade of B or better is required in each course.

<sup>4</sup> Note: MUS 3020 may only fulfill the requirement for one semester. Students must enroll in one of these courses each semester they are taking 12 or more hours. Four semesters of MUS 3050:071, MUS 3150, MUS 3170 or MUS 3190. The minimum requirement is an accumulation of 12 hours of ensemble credits, but only four hours may be counted toward the degree.

<sup>5</sup> These hours also count to fulfill the Humanities requirement in the Core Curriculum.

<sup>6</sup> Note: MUS 3020 may only fulfill the requirement for one semester. Two semesters of MUS 3050:041 or MUS 3050:043. Eight semesters of MUS 3050:044. The distribution of MUS 3050 ensembles indicated here is flexible and may be adjusted to individual needs with the approval of the applied music teacher. The minimum requirement is an accumulation of 14 hours of ensemble credits, but only four hours may be counted toward degree.

<sup>7</sup> Students must enroll in MUS 3090 each semester they are taking 12 or more hours. Two semesters of MUS 3140, MUS 3160 or MUS 3180. Four semesters of any choice of small ensembles that includes the student's major instrument. The minimum requirement is an accumulation of 14 hours of ensemble credits, but only four hours may be counted toward the degree. (4 hours)

<sup>8</sup> Note: MUS 3020 may only be used to fulfill the ensemble requirement for one semester. Students must enroll in MUS 3050:036 or any large ensemble (MUS 3010, MUS 3020, or MUS 3090) each semester they are taking 12 or more hours. The minimum requirement is an accumulation of 12 hours of ensemble credits, but only four hours may be counted toward degree.

<sup>9</sup> A minimum of 2 semesters of MUS 3010, and a minimum of 2 semesters of MUS 3090. (Note: MUS 3020 may only fulfill the requirement for one semester.) Students must enroll in one of these courses each semester they are taking 12 or more hours. Two semesters of MUS 3140, MUS 3160 or MUS 3180. Four semesters of any choice of small ensembles that includes the student's major instrument. The minimum requirement is an accumulation of 14 hours of ensemble credits, but only four hours may be counted toward degree. (4 hours).

<sup>10</sup> Eight hours of Applied Music (classical) and successful completion of two semesters with a grade of B or better in MUS 2800 (classical.)

<sup>11</sup> Eighteen hours of Applied Music (jazz) on the student's major instrument (or combination of instruments with the consent of the

Advisor) and successful completion of two semesters with a grade of B or better in MUS 4800 (jazz.)

<sup>12</sup> The minimum requirement is an accumulation of 13 hours of ensemble credits, but only four hours may be counted toward degree.

<sup>13</sup> The minimum requirement is an accumulation of 12 hours of ensemble credits, but only four hours may be counted toward degree.

<sup>14</sup> Sixteen hours of Applied Music (jazz) on the student's major instrument (or combination of instruments with the consent of the Advisor) and successful completion of two semesters with a grade of B or better in MUS 4800 (jazz.)

*Below is a sample plan of study. Consult your degree audit for your program requirements*

- Bachelor of Music - Instrumental Jazz (p. 100)
- Bachelor of Music - Jazz Music Business (p. 101)
- Bachelor of Music - Vocal Jazz (p. 103)
- Bachelor of Music - Guitar Concentration (p. 104)
- Bachelor of Music - Piano Concentration (p. 105)
- Bachelor of Music - String Concentration (p. 106)
- Bachelor of Music - Voice Concentration (p. 107)
- Bachelor of Music - Wind and Percussion Concentration (p. 109)

## Bachelor of Music - Instrumental Jazz

First Term		Hours
AR 1000	First Year Orientation	1
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1570	Piano Class For Music Majors I	1
MUS 1610	Music Theory And Ear Training I	4
MUS 1800	Applied Music (Jazz)	2
MUS 1800	Applied Music (Classical) <sup>1</sup>	2
MUS 2270	Recording Techniques	2
MUS 3020	Jazz Ensemble	1
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>16</b>
Second Term		Hours
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1590	Jazz Piano Class	1
MUS 1620	Music Theory And Ear Training II	4
MUS 1800	Applied Music (Jazz)	2
MUS 1700	Jazz Fundamentals	2
MUS 3020	Jazz Ensemble	1
Additional Ensemble		1
MUS 3140	Concert Chorale	
MUS 3150	Jazz Vocalstra	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MATH 1180	Reasoning With Mathematics	3

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
<b>Hours</b>		<b>17</b>
<b>Third Term</b>		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1800	Applied Music (Classical) <sup>1</sup>	1
MUS 1800	Applied Music (Jazz Piano)	1
MUS 2610	Music Theory And Ear Training III	4
MUS 2700	Jazz Improvisation I	2
MUS 2800	Applied Music (Jazz)	2
MUS 3020	Jazz Ensemble	1
Natural Sciences Core		3
Social Sciences Core		3
<b>Hours</b>		<b>17</b>
<b>Fourth Term</b>		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2800	Applied Music (Jazz)	2
MUS 1800	Applied Music (Classical) <sup>1</sup>	1
MUS 2710	Jazz Improvisation II	2
MUS 1800	Applied Music (Jazz Piano)	1
MUS 3020	Jazz Ensemble	1
MUS 2620	Music Theory And Ear Training IV	4
Arts/Humanities Core (History)		3
Core Elective		3
<b>Hours</b>		<b>17</b>
<b>Fifth Term</b>		
SPECIAL CONSIDERATION <sup>2</sup>		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2220	History Of Jazz (Diversity of US)	3
MUS 2800	Applied Music (Classical) <sup>1</sup>	1
MUS 3020	Jazz Ensemble	1
MUS 3050	Chamber Music Ensembles (Jazz Combo)	1
MUS 3410	Music History And Literature II	3
MUS 3700	Jazz Improvisation III	2
MUS 3800	Applied Music (Jazz)	3
Social Sciences Core		3
<b>Hours</b>		<b>17</b>
<b>Sixth Term</b>		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2800	Applied Music (Classical) <sup>1</sup>	1
MUS 3020	Jazz Ensemble	1
MUS 3050	Chamber Music Ensembles (Jazz Combo)	1
MUS 3420	Music History And Literature III	3
MUS 3710	Jazz Improvisation IV	2
MUS 3800	Applied Music (Jazz)	2

MUS 3810	Recital (Jazz)	1
Natural Science Core		3
Natural Science Lab		1
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
MUS 1000	Performance Laboratory	0
MUS 2420	Cultures And Music Of Non-Western Styles (Non-US Diversity)	3
MUS 2800	Applied Music (Classical) <sup>1</sup>	1
MUS 3020	Jazz Ensemble	1
MUS 3050	Chamber Music Ensembles (Jazz Combo)	1
MUS 3560	Jazz Pedagogy And Conducting	2
MUS 3650	Jazz Arranging And Composition I	3
MUS 4800	Applied Music (Jazz)	3
ENGL 2710 - 2800 Art/Humanities Core (English Lit)		3
<b>Hours</b>		<b>17</b>
<b>Eighth Term</b>		
MUS 1000	Performance Laboratory	0
MUS 2800	Applied Music (Classical) <sup>1</sup>	1
MUS 3020	Jazz Ensemble	1
MUS 3050	Chamber Music Ensembles (Jazz Combo)	1
MUS 3450	Jazz History And Literature	3
MUS 3660	Jazz Arranging And Composition II	3
MUS 4800	Applied Music (Jazz)	2
MUS 4810	Recital (Jazz)	1
Upper Division Music Elective <sup>4</sup>		2
Arts/Humanities Core (Communication)		3
<b>Hours</b>		<b>17</b>
<b>Total Hours</b>		<b>133</b>

- <sup>1</sup> Required 4 credits of Applied Music - Classical are often taken in the summer.
- <sup>2</sup> Students must successfully pass Upper Divisional Applied Music Jury.
- <sup>3</sup> Replaces 2 Music Electives.
- <sup>4</sup> Needs 1 hr. Upper Division Music Elective Lecture (3xxx or higher): Improvisation Seminar, Form & Analysis, Counterpoint, etc.

Code	Title	Hours
Total Credit Hours		133
Minus credits that do not count toward graduation		-9
Total Earned Credit Hours		124

## Bachelor of Music - Jazz Music Business

Code	Title	Hours
<b>First Term</b>		
AR 1000	First Year Orientation	1
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1570	Piano Class For Music Majors I	1
MUS 1610	Music Theory And Ear Training I	4
MUS 1800	Applied Music (Jazz)	2



MUS 2270	Recording Techniques	2	MUS 3800	Applied Music (Jazz)	2			
MUS 3020	Jazz Ensemble	1	Social Sciences Core		3			
ENGL 1110	College Composition I	3	Core Elective		2			
MATH 1180	Reasoning With Mathematics	3						
<b>Hours</b>		<b>17</b>	<b>Hours</b>		<b>17</b>			
<b>Second Term</b>								
MUS 1000	Performance Laboratory	0	MUS 1000	Performance Laboratory	0			
MUS 1010	Concert Attendance	0	MUS 1010	Concert Attendance	0			
MUS 1590	Jazz Piano Class	1	MUS 3020	Jazz Ensemble <sup>1</sup>	1			
MUS 1620	Music Theory And Ear Training II	4	MUS 3050	Chamber Music Ensembles (Jazz Combo) <sup>1</sup>	1			
MUS 1700	Jazz Fundamentals	2	MUS 3420	Music History And Literature III (WAC)	3			
MUS 1800	Applied Music (Jazz)	2	MUS 3710	Jazz Improvisation IV	2			
MUS 3020	Jazz Ensemble	1	MUS 3800	Applied Music (Jazz)	2			
MUS 3050	Chamber Music Ensembles (Jazz Combo)	1	MUS 3810	Recital (Jazz)	1			
MUS 3270	Advanced Recording Techniques	2	Social Sciences Core		3			
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3	Natural Sciences Core		3			
<b>Hours</b>		<b>16</b>	Natural Sciences Core (Lab)		1			
<b>Third Term</b>								
MUS 1000	Performance Laboratory	0	<b>Hours</b>		<b>17</b>			
MUS 1010	Concert Attendance	0	<b>Seventh Term</b>					
MUS 1800	Applied Music (MUS 1800:065 Jazz Piano)	1	MUS 1000	Performance Laboratory	0			
MUS 2280	Survey Of The Music Business	3	MUS 2420	Cultures And Music Of Non-Western Styles (Non-US Diversity)	3			
MUS 2610	Music Theory And Ear Training III	4	MUS 3020	Jazz Ensemble <sup>1</sup>	1			
MUS 2700	Jazz Improvisation I	2	MUS 3050	Chamber Music Ensembles (Jazz Combo) <sup>1</sup>	1			
MUS 2800	Applied Music (Jazz)	2	MUS 3290					
MUS 3020	Jazz Ensemble	1	MUS 3560	Jazz Pedagogy And Conducting	2			
Natural Sciences Core		3	MUS 3650	Jazz Arranging And Composition I <sup>3,4</sup>	3			
<b>Hours</b>		<b>16</b>	MUS 4800	Applied Music (Jazz)	2			
<b>Fourth Term</b>								
MUS 1000	Performance Laboratory	0	Arts/Humanities Core (History)		3			
MUS 1010	Concert Attendance	0	<b>Hours</b>		<b>15</b>			
MUS 1800	Applied Music (MUS 1800:065 Jazz Piano)	1	<b>Eighth Term</b>					
MUS 2710	Jazz Improvisation II	2	MUS 1000	Performance Laboratory	0			
MUS 2620	Music Theory And Ear Training IV	4	MUS 4800	Applied Music (Jazz)	2			
MUS 2800	Applied Music (Jazz)	2	MUS 3020	Jazz Ensemble <sup>1</sup>	1			
MUS 3020	Jazz Ensemble <sup>1</sup>	1	MUS 3050	Chamber Music Ensembles (Jazz Combo) <sup>1</sup>	1			
MUS 3280		3	MUS 3450	Jazz History And Literature	3			
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3	MUS 3660	Jazz Arranging And Composition II <sup>3,4</sup>	3			
<b>Hours</b>		<b>16</b>	MUS 4290					
<b>Fifth Term</b>								
SPECIAL CONSIDERATION <sup>2</sup>			Arts/Humanities Core (Communication)		3			
MUS 1000	Performance Laboratory	0	<b>Hours</b>		<b>13</b>			
MUS 1010	Concert Attendance	0	<b>Total Hours</b>					
MUS 2220	History Of Jazz (Diversity of US)	3	<b>127</b>					
MUS 3020	Jazz Ensemble <sup>1</sup>	1						
MUS 3050	Chamber Music Ensembles (Jazz Combo) <sup>1</sup>	1						
MUS 3410	Music History And Literature II (WAC)	3						
MUS 3700	Jazz Improvisation III	2						

<sup>1</sup> Does not count toward graduation.<sup>2</sup> Students must successfully pass Upper Division Applied Music Jury. Required 4 credits of Applied Music - Classical can instead be taken in the summer.<sup>3</sup> Replaces 2 Music Electives.<sup>4</sup> Needs 1 hr. Upper Division Music Elective Lecture (3xxx or higher): Improvisation Seminar, Form & Analysis, Counterpoint, etc.

Code	Title	Hours
Total Credit Hours		133
Minus credits that do not count toward graduation		-9
Total Earned Credit Hours		124

## Bachelor of Music - Vocal Jazz

First Term		Hours
AR 1000	First Year Orientation	1
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1570	Piano Class For Music Majors I	1
MUS 1610	Music Theory And Ear Training I	4
MUS 1800	Applied Music (Jazz)	2
MUS 1800	Applied Music (Classical)	2
MUS 2270	Recording Techniques	2
MUS 3150	Jazz Vocalstra	1
ENGL 1110	College Composition I	3

**Hours** 16

Second Term		Hours
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1590	Jazz Piano Class	1
MUS 1620	Music Theory And Ear Training II	4
MUS 1700	Jazz Fundamentals	2
MUS 1800	Applied Music (Jazz)	2
MUS 3020	Jazz Ensemble <sup>1</sup>	1
	or MUS 3050 or Chamber Music Ensembles	
MUS 3150	Jazz Vocalstra	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3

**Hours** 17

Third Term		Hours
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1800	Applied Music (Classical)	1
MUS 1800	Applied Music (MUS 1800:065 Applied Music-Jazz Piano)	1
MUS 2800	Applied Music (Jazz)	2
MUS 2610	Music Theory And Ear Training III	4
MUS 2700	Jazz Improvisation I	2
MUS 3150	Jazz Vocalstra	1
Social Sciences Core		3
Natural Sciences Core		3

**Hours** 17

Fourth Term		Hours
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1800	Applied Music (Classical)	1

MUS 1800	Applied Music (MUS 1800:065 Applied Music - Jazz Piano)	1
MUS 2620	Music Theory And Ear Training IV	4
MUS 2710	Jazz Improvisation II	2
MUS 2800	Applied Music (Jazz)	2
MUS 3150	Jazz Vocalstra <sup>1</sup>	1
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
Core Elective		3

**Hours** 17

Fifth Term		Hours
SPECIAL CONSIDERATION <sup>3</sup>		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2220	History Of Jazz (Diversity of US)	3
MUS 2800	Applied Music (Classical)	1
MUS 3150	Jazz Vocalstra <sup>1</sup>	1
MUS 3020	Jazz Ensemble <sup>1</sup>	1
	or MUS 3050 or Chamber Music Ensembles	
MUS 3410	Music History And Literature II (WAC)	3
MUS 3700	Jazz Improvisation III	2
MUS 3800	Applied Music (Jazz)	3
Social Sciences Core		3

**Hours** 17

Sixth Term		Hours
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2800	Applied Music (Classical)	1
MUS 3020	Jazz Ensemble <sup>1</sup>	1
	or MUS 3050 or Chamber Music Ensembles	
MUS 3150	Jazz Vocalstra <sup>1</sup>	1
MUS 3420	Music History And Literature III (WAC)	3
MUS 3710	Jazz Improvisation IV	2
MUS 3800	Applied Music (Jazz)	2
MUS 3810	Recital (Jazz)	1
Natural Sciences Core		3
Natural Sciences Core (Lab)		1

**Hours** 15

Seventh Term		Hours
MUS 1000	Performance Laboratory	0
MUS 2220	History Of Jazz (Non-US Diversity )	3
MUS 2800	Applied Music (Classical)	1
MUS 3020	Jazz Ensemble <sup>1</sup>	1
	or MUS 3050 or Chamber Music Ensembles	
MUS 3150	Jazz Vocalstra <sup>1</sup>	1
MUS 3560	Jazz Pedagogy And Conducting	2
MUS 3650	Jazz Arranging And Composition I <sup>3</sup>	3
MUS 4800	Applied Music (Jazz)	3
Arts/Humanities Core (History)		3

**Hours** 17



**Eighth Term**

MUS 1000	Performance Laboratory	0
MUS 2800	Applied Music (Classical)	1
MUS 3020	Jazz Ensemble <sup>1</sup>	1
or MUS 3050	or Chamber Music Ensembles	
MUS 3150	Jazz Vocalstra <sup>1</sup>	1
MUS 3450	Jazz History And Literature	3
MUS 3660	Jazz Arranging And Composition II <sup>3</sup>	3
MUS 4800	Applied Music (Jazz)	2
MUS 4810	Recital (Jazz)	1
MUS 3xxx	Upper Division Music Elective <sup>4</sup>	2
Arts/Humanities Core (Communication)		3
<b>Hours</b>		<b>17</b>
<b>Total Hours</b>		<b>133</b>

<sup>1</sup> Does not count toward graduation.

<sup>2</sup> Students must successfully pass Upper Division Applied Music Jury. Required 4 credits of Applied Music - Classical can instead be taken in the summer.

<sup>3</sup> Replaces 2 Music Electives.

<sup>4</sup> Needs 1 hr. Upper Division Music Elective Lecture (3xxx or higher): Improvisational Seminar, Form & Analysis, Counterpoint, etc.

Code	Title	Hours
Total Credit Hours		133
Minus credits that do not count toward graduation		-9
Total Earned Credit Hours		124

**Bachelor of Music - Guitar Concentration**

First Term		Hours
AR 1000	First Year Orientation	1
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1570	Piano Class For Music Majors I	1
MUS 1610	Music Theory And Ear Training I	4
MUS 1800	Applied Music	4
MUS 3050	Chamber Music Ensembles (Guitar Ensemble)	1
MUS 3130	University Chorus	1
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>15</b>

**Second Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1580	Piano Class For Music Majors II	1
MUS 1620	Music Theory And Ear Training II	4
MUS 1800	Applied Music	4
MUS 3050	Chamber Music Ensembles (Guitar Ensemble)	1
MUS 1700	Jazz Fundamentals	2

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>18</b>

**Third Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2570	Piano Class For Music Majors III	1
MUS 2610	Music Theory And Ear Training III	4
MUS 2800	Applied Music	4
MUS 3050	Chamber Music Ensembles (Guitar Ensemble)	1
MUS 3130	University Chorus	1
Social Sciences Core/CAL Soc Sci		3
Humanities Core/CAL History		3
<b>Hours</b>		<b>17</b>

**Fourth Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2420	Cultures And Music Of Non-Western Styles	3
MUS 2620	Music Theory And Ear Training IV	4
MUS 2800	Applied Music	4
MUS 3050	Chamber Music Ensembles (Guitar Ensemble)	1
MUS 1100	Introduction To Music Technology	1
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>17</b>

**Fifth Term**

SPECIAL CONSIDERATION <sup>1</sup>		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 3050	Chamber Music Ensembles (Choose from: MUS 3050 Contemporary Commercial Music Ensemble; MUS 3020 Jazz Ensemble; MUS 3050 Jazz Combo; other ensembles per advisor approval)	1
MUS 3410	Music History And Literature II (WAC)	3
MUS 3500	Conducting	2
MUS 3800	Applied Music	4
MUS 3570		3
EFSB 3500	Introduction To Entrepreneurship for Non-Business Students	3
<b>Hours</b>		<b>16</b>

**Sixth Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0



MUS 3050	Chamber Music Ensembles (Choose from: MUS 3050 Contemporary Commercial Music Ensemble; MUS 3020 Jazz Ensemble; MUS 3050 Jazz Combo; other ensembles per advisor approval)	1
MUS 3420	Music History And Literature III (WAC)	3
MUS 3800	Applied Music (Soc Sci Core)	3
MUS 3810	Recital	1
Arts&Humanities Core/CAL English Lit		3
Soc Sci Core/CAL Soc Sci		3
Electives (excluding ensembles)		3
<b>Hours</b>		<b>17</b>

**Seventh Term**

MUS 1000	Performance Laboratory	0
MUS 3050	Chamber Music Ensembles (Choose from: MUS 3050 Contemporary Commercial Music Ensemble; MUS 3020 Jazz Ensemble; MUS 3050 Jazz Combo; other ensembles per advisor approval)	1
MUS 4800	Applied Music	4
MUS 3650	Jazz Arranging And Composition I	3
Core Elective/CAL Soc Sci		3
Core Elective - any core class		3
<b>Hours</b>		<b>14</b>

**Eighth Term**

MUS 1000	Performance Laboratory	0
MUS 3050	Chamber Music Ensembles (Choose from: MUS 3050 Contemporary Commercial Music Ensemble; MUS 3020 Jazz Ensemble; MUS 3050 Jazz Combo; other ensembles per advisor approval)	1
MUS 4800	Applied Music	3
MUS 4810	Recital	1
MUS 4460		3
Core - Natural Science		3
Electives (excluding ensembles)		5
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>130</b>

<sup>1</sup> Students must successfully pass Upper Division Applied Music Jury.

Code	Title	Hours
Total Credit Hours		132
Minus credits that do not count toward graduation		-6
Total Earned Credit Hours		124

## Bachelor of Music - Piano Concentration

First Term		Hours
AR 1000	First Year Orientation	1
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0

MUS 1610	Music Theory And Ear Training I	4
MUS 1800	Applied Music	4
MUS 2590	Class Piano For Piano Majors	2
MUS 3050	Chamber Music Ensembles (Accompanying)	1
Select one of the following:		1
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble <sup>1</sup>	
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>16</b>

**Second Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1620	Music Theory And Ear Training II	4
MUS 1800	Applied Music	4
MUS 3050	Chamber Music Ensembles (Accompanying)	1
Select one of the following:		1
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble <sup>1</sup>	

MUS 3580		2
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>18</b>

**Third Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2610	Music Theory And Ear Training III	4
MUS 2800	Applied Music	4
MUS 3050	Chamber Music Ensembles (Accompanying) <sup>2</sup>	1
MUS 3050	Chamber Music Ensembles (MUS 3050:041 or MUS 3050:043 Small Ensemble) <sup>2</sup>	1
Social Sciences Core		3
Natural Sciences Core		3
<b>Hours</b>		<b>16</b>

**Fourth Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2410	Music History And Literature I: World Music And Jazz	3
MUS 2620	Music Theory And Ear Training IV	4
MUS 2800	Applied Music	4
MUS 3050	Chamber Music Ensembles (Accompanying) <sup>2</sup>	1



MUS 3050	Chamber Music Ensembles (MUS 3050:041 or MUS 3050:043 Small Ensemble) <sup>2</sup>	1
Natural Sciences Core		3
Natural Sciences Core (Lab)		1

**Hours** 17

**Fifth Term**

SPECIAL CONSIDERATION <sup>3</sup>		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 3050	Chamber Music Ensembles (Accompanying) <sup>2</sup>	1
MUS 3410	Music History And Literature II (WAC)	3
Select one of the following: <sup>2</sup>		1
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble <sup>1</sup>	
MUS 3500	Conducting	2
MUS 3800	Applied Music	4
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
Arts/Humanities Core (Communication)		3

**Hours** 17

**Sixth Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 3050	Chamber Music Ensembles (Accompanying) <sup>2</sup>	1
MUS 3420	Music History And Literature III (WAC)	3
Select one of the following: <sup>2</sup>		1
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble <sup>1</sup>	
MUS 3800	Applied Music	3
MUS 3810	Recital	1
Music Elective: 4000 or above		2
Arts/Humanities (History)		3
MUS 2220	History Of Jazz (Diversity of US)	3

**Hours** 17

**Seventh Term**

MUS 1000	Performance Laboratory	0
MUS 2420	Cultures And Music Of Non-Western Styles (Non-US Diversity)	3
MUS 3050	Chamber Music Ensembles (Accompanying) <sup>2</sup>	1
MUS 3590	Piano Pedagogy	2
MUS 3610	Form And Analysis	3
MUS 4800	Applied Music	4
Social Sciences Core		3

**Hours** 16

**Eighth Term**

MUS 1000	Performance Laboratory	0
MUS 3050	Chamber Music Ensembles (Accompanying) <sup>2</sup>	1
MUS 4450	Keyboard Literature	3
MUS 4620	Counterpoint: Introduction	3
MUS 4xxx Elective		3
MUS 4800	Applied Music	3
MUS 4810	Recital	1
Core Elective		3

**Hours** 17

**Total Hours** 134

<sup>1</sup> MUS 3020 may only count once.

<sup>2</sup> Does not count toward graduation.

<sup>3</sup> Students must successfully pass Upper Division Applied Music Jury.

Code	Title	Hours
Total Credit Hours		134
Minus credits that do not count toward graduation		-10
Total Earned Credit Hours		124

**Bachelor of Music - String Concentration**

First Term	Hours	
AR 1000	First Year Orientation	1
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1500	String Class	2
MUS 1570	Piano Class For Music Majors I	1
MUS 1610	Music Theory And Ear Training I	4
MUS 1800	Applied Music	4
MUS 3090	University Orchestra	1
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>16</b>

Second Term	Hours	
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1800	Applied Music	4
MUS 1580	Piano Class For Music Majors II	1
MUS 1620	Music Theory And Ear Training II	4
MUS 3090	University Orchestra	1
MUS 3xxx Small Ensemble Elective		1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>17</b>

Third Term	Hours	
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2610	Music Theory And Ear Training III	4

MUS 2800	Applied Music	4
MUS 2570	Piano Class For Music Majors III	1
MUS 3090	University Orchestra	1
Select one of the following: <sup>1</sup>		1
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
Social Sciences Core		3
Natural Sciences Core		3
<b>Hours</b>		<b>17</b>

**Fourth Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2410	Music History And Literature I: World Music And Jazz	3
MUS 2620	Music Theory And Ear Training IV	4
MUS 2800	Applied Music	4
MUS 3090	University Orchestra <sup>1</sup>	1
MUS 3xxx Small Ensemble Elective <sup>1</sup>		1
Social Sciences Core		3
<b>Hours</b>		<b>16</b>

**Fifth Term**

SPECIAL CONSIDERATION <sup>2</sup>

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 3090	University Orchestra <sup>1</sup>	1
Select one of the following: <sup>1</sup>		1
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3410	Music History And Literature II (WAC)	3
MUS 3800	Applied Music	4
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>16</b>

**Sixth Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2220	History Of Jazz (Diversity of US)	3
MUS 3090	University Orchestra <sup>1</sup>	1
MUS 3xxx Small Ensemble Elective <sup>1</sup>		1
MUS 3420	Music History And Literature III (WAC)	3
MUS 3800	Applied Music	3
MUS 3810	Recital	1
MUS 4xxx Elective		3
Arts/Humanities Core (History)		3
<b>Hours</b>		<b>18</b>

**Seventh Term**

MUS 1000	Performance Laboratory	0
MUS 2420	Cultures And Music Of Non-Western Styles (Non-US Diversity)	3
MUS 3090	University Orchestra <sup>1</sup>	1
MUS 3xxx Small Ensemble Elective <sup>1</sup>		1
MUS 3500	Conducting	2
MUS 3610	Form And Analysis	3
MUS 4800	Applied Music	4
Arts/Humanities Core (Communication)		3
<b>Hours</b>		<b>17</b>

**Eighth Term**

MUS 1000	Performance Laboratory	0
MUS 3090	University Orchestra <sup>1</sup>	1
MUS 4410	Instrumental Music Literature	3
MUS 4620	Counterpoint: Introduction	3
MUS 4xxx Elective		3
MUS 4800	Applied Music	3
MUS 4810	Recital	1
Core Elective		3
<b>Hours</b>		<b>17</b>
<b>Total Hours</b>		<b>134</b>

<sup>1</sup> Does not count toward graduation.

<sup>2</sup> Students must successfully pass Upper Division Applied Music Jury.

Code	Title	Hours
Total Credit Hours		134
Minus credits that don't count toward graduation		-10
Total Earned Credit Hours		124

## Bachelor of Music - Voice Concentration

First Term	Hours	
AR 1000	First Year Orientation	1
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1570	Piano Class For Music Majors I	1
MUS 1610	Music Theory And Ear Training I	4
MUS 1800	Applied Music	4
MUS 2530	Diction For Singers I	1
Select one of the following:		1
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble <sup>1</sup>	
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>15</b>

**Second Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0



MUS 1580	Piano Class For Music Majors II	1
MUS 1620	Music Theory And Ear Training II	4
MUS 1800	Applied Music	4
MUS 2540	Diction For Singers II	1
Select one of the following:		1
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble <sup>1</sup>	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3

**Hours** 17

**Third Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2570	Piano Class For Music Majors III	1
MUS 2610	Music Theory And Ear Training III	4
MUS 2800	Applied Music	4
Select one of the following:		1

MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble <sup>1</sup>	

Select one of the following: <sup>1</sup> 1

MUS 3050	Chamber Music Ensembles (MUS 3050:071)	
MUS 3150	Jazz Vocalstra	
MUS 3170	Chamber Singers	
MUS 3190	Lyric Theater Workshop	

Social Sciences Core 3

Natural Sciences Core 3

**Hours** 17

**Fourth Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2410	Music History And Literature I: World Music And Jazz	3
MUS 2580	Piano Class For Music Majors IV	1
MUS 2620	Music Theory And Ear Training IV	4
MUS 2800	Applied Music	4

Select one of the following: <sup>2</sup> 1

MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble <sup>1</sup>	

Select one of the following: <sup>2</sup> 1

MUS 3050	Chamber Music Ensembles (MUS 3050:071)	
MUS 3150	Jazz Vocalstra	

MUS 3170	Chamber Singers	
MUS 3190	Lyric Theater Workshop	
Social Sciences Core/Non-US Diversity		3
<b>Hours</b>		<b>17</b>

**Fifth Term**

SPECIAL CONSIDERATION <sup>3</sup>

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0

Select one of the following: <sup>2</sup> 1

MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble <sup>1</sup>	

MUS 3410 Music History And Literature II (WAC) 3

MUS 3500 Conducting 2

MUS 3800 Applied Music 4

ENGL 2710-2800 Arts/Humanities Core (English Lit) 3

Natural Sciences Core 3

Natural Sciences Core (Lab) 1

**Hours** 17

**Sixth Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0

Select one of the following: <sup>2</sup> 1

MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble <sup>1</sup>	

Select one of the following: 1

MUS 3050	Chamber Music Ensembles (MUS 3050:071)	
MUS 3150	Jazz Vocalstra	
MUS 3170	Chamber Singers	
MUS 3190	Lyric Theater Workshop	

MUS 3420 Music History And Literature III (WAC) 3

MUS 3800 Applied Music 3

MUS 3810 Recital 1

Arts/Humanities Core (History) 3

FREN 1110 Elementary French I  
or GERM 1110 or Elementary German I 4

**Hours** 16

**Seventh Term**

MUS 1000 Performance Laboratory 0

Select one of the following: <sup>2</sup> 1

MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble <sup>1</sup>	

Select one of the following: 1

MUS 3050	Chamber Music Ensembles (MUS 3050:071)	
MUS 3150	Jazz Vocalstra	
MUS 3170	Chamber Singers	
MUS 3190	Lyric Theater Workshop	
MUS 3550	Vocal Pedagogy and Literature 1	2
MUS 3610	Form And Analysis	3
MUS 4800	Applied Music	4
Core Elective		2
GERM 1110 or FREN 1110	Elementary German I or Elementary French I	4
<b>Hours</b>		<b>17</b>
<b>Eighth Term</b>		
MUS 1000	Performance Laboratory	0
Select one of the following: <sup>2</sup>		1
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3020	Jazz Ensemble <sup>1</sup>	
MUS 4420	Vocal Pedagogy and Literature 2	2
MUS 3/4xxx Elective		3
MUS 4800	Applied Music	3
MUS 4810	Recital	1
Diversity of US		3
Arts/Humanities Core (Communication)		3
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>132</b>

<sup>1</sup> MUS 3020 may only count once.

<sup>2</sup> Does not count toward graduation.

<sup>3</sup> Students must successfully pass Upper Division Applied Music Jury.

Code	Title	Hours
Total Credit Hours		132
Minus credits that do not count toward graduation		-8
Total Earned Credit Hours		124

## Bachelor of Music - Wind and Percussion Concentration

First Term		Hours
AR 1000	First Year Orientation	1
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1570	Piano Class For Music Majors I	1
MUS 1610	Music Theory And Ear Training I	4
MUS 1800	Applied Music	4
Select one of the following: <sup>1</sup>		1
MUS 3010	University Band	
MUS 3020	Jazz Ensemble	
MUS 3090	University Orchestra	

MUS 3xxx Small Ensemble		1
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>15</b>

### Second Term

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1580	Piano Class For Music Majors II	1
MUS 1620	Music Theory And Ear Training II	4
MUS 1800	Applied Music	4
Select one of the following: <sup>1</sup>		1
MUS 3010	University Band	
MUS 3020	Jazz Ensemble	
MUS 3090	University Orchestra	
MUS 3xxx Small Ensemble		1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>17</b>

### Third Term

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2570	Piano Class For Music Majors III	1
MUS 2610	Music Theory And Ear Training III	4
MUS 2800	Applied Music	4
Select one of the following: <sup>1,2</sup>		1
MUS 3010	University Band	
MUS 3020	Jazz Ensemble	
MUS 3090	University Orchestra	
Select one of the following: <sup>2</sup>		1
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
Social Sciences Core		3
Natural Sciences Core		3
<b>Hours</b>		<b>17</b>

### Fourth Term

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2410	Music History And Literature I: World Music And Jazz	3
MUS 2620	Music Theory And Ear Training IV	4
MUS 2800	Applied Music	4
Select one of the following: <sup>1,2</sup>		1
MUS 3010	University Band	
MUS 3020	Jazz Ensemble	
MUS 3090	University Orchestra	
MUS 3xxx Small Ensemble <sup>2</sup>		1
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>17</b>



**Fifth Term**

SPECIAL CONSIDERATION <sup>3</sup>		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
Select one of the following: <sup>1,2</sup>		1
MUS 3010	University Band	
MUS 3020	Jazz Ensemble	
MUS 3090	University Orchestra	
MUS 3410	Music History And Literature II (WAC)	3
MUS 3500	Conducting	2
MUS 3xxx Small Ensemble <sup>2</sup>		1
MUS 3800	Applied Music	4
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
Arts/Humanities Core (Communication)		3
<b>Hours</b>		<b>17</b>

**Sixth Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2220	History Of Jazz (Diversity of US)	3
Select one of the following: <sup>1,2</sup>		1
MUS 3010	University Band	
MUS 3020	Jazz Ensemble	
MUS 3090	University Orchestra	
MUS 3420	Music History And Literature III (WAC)	3
MUS 3800	Applied Music	3
MUS 3810	Recital	1
MUS 4xxx Elective		3
Arts/Humanities Core (History)		3
<b>Hours</b>		<b>17</b>

**Seventh Term**

MUS 1000	Performance Laboratory	0
Select one of the following:		2
MUS 1510	Percussion Class	
MUS 1530	Brass Class	
MUS 1550	Woodwinds Class	
MUS 2420	Cultures And Music Of Non-Western Styles (Non-US Diversity)	3
Select one of the following: <sup>1,2</sup>		1
MUS 3010	University Band	
MUS 3020	Jazz Ensemble	
MUS 3090	University Orchestra	
Select one of the following: <sup>2</sup>		1
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 3610	Form And Analysis	3
MUS 4800	Applied Music	4
Social Sciences Core		3
<b>Hours</b>		<b>17</b>

**Eighth Term**

MUS 1000	Performance Laboratory	0
Select one of the following: <sup>1,2</sup>		1
MUS 3010	University Band	
MUS 3020	Jazz Ensemble	
MUS 3090	University Orchestra	
MUS 4410	Instrumental Music Literature	3
MUS 4620	Counterpoint: Introduction	3
MUS 4xxx Elective		3
MUS 4800	Applied Music	3
MUS 4810	Recital	1
Core elective		3
<b>Hours</b>		<b>17</b>
<b>Total Hours</b>		<b>134</b>

<sup>1</sup> Minimum of 2 semesters of MUS 3010 ; minimum of 2 semesters of MUS 3090; MUS 3020 can only count once.

<sup>2</sup> Does not count toward graduation.

<sup>3</sup> Students must successfully pass Upper Division Applied Music Jury.

Code	Title	Hours
Total Credit Hours		134
Minus credits that do not count toward graduation		-10
Total Earned Credit Hours		124

- PLO 1. Through preparation and application of appropriate performance techniques, students will demonstrate a high level of competence in their major area of applied study.
- PLO 2. Students will demonstrate comprehension of their major area of applied study by applying the skills necessary for independent, self-directed preparation and performance.
- PLO 3. Students will be able to demonstrate a knowledge of applicable performance and teaching literature.
- PLO 4. Students will demonstrate the fundamentals of effective music pedagogy.
- PLO 5. Students will demonstrate knowledge of Western musical theory - including tonal and chromatic harmonies, counterpoint and contemporary musical styles - through examination and explanation.

## Bachelor of Music Education

For details on the baccalaureate program in music education, see The Judith Herb College of Education (p. 564) catalog.

## Instrumental Minor

Admission to the minor program requires the following:

1. approval of the Department of Music; and
2. an approved placement audition level on an acceptable instrument or voice (interview for music business and recording arts minor).

Students electing to pursue a minor in music choose one of the seven minors outlined below. It is the student's responsibility, in consultation with the student's major Advisor and the music Advisor, to see that the

necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should ensure that the minor in music is an approved program within their college. Candidates for the minor in music must have their course work verified and approved by the Advisor for the Department of Music prior to making formal application for graduation. This can be done by presenting a transcript to the music Advisor and completing the verification form for the minor in music.

Students must maintain a minimum GPA of 2.0 for all course work completed in the minor.

Total of 22 Hours

Code	Title	Hours
MUS 1000	Performance Laboratory (2 semesters)	0
MUS 1010	Concert Attendance (3 semesters)	0
Select one of the following: <sup>1</sup>		1
MUS 1570	Piano Class For Music Majors I	
MUS 1590	Jazz Piano Class	
MUS 2570	Piano Class For Music Majors III	
MUS 2580	Piano Class For Music Majors IV	
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4
MUS 1800	Applied Music <sup>3</sup>	8
	or MUS 2800 Applied Music	
Select four hours of one of the following:		4
MUS 3010	University Band (4 semesters)	
MUS 3050	Chamber Music Ensembles (MUS 3050:36)	
MUS 3090	University Orchestra	
MUS 2410	Music History And Literature I: World Music And Jazz <sup>2</sup>	3
Electives. Select 2 hours of MUS Major level courses only, excluding ensembles		2
<b>Total Hours</b>		<b>22</b>

<sup>1</sup> Placement test required. Grade of C or better is required.

<sup>2</sup> A grade of C or better is required.

<sup>3</sup> At least 6 hours must be in the same instrument or voice.

## Jazz Minor

Admission to the minor program requires the following:

1. approval of the Department of Music; and
2. an approved placement audition level on an acceptable instrument or voice (interview for music business and recording arts minor).

Students electing to pursue a minor in music choose one of the seven minors outlined below. It is the student's responsibility, in consultation with the student's major Advisor and the music Advisor, to see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should ensure that the minor in music is an approved program within their college. Candidates for the minor in music must have their course work verified and approved by the Advisor for the Department of Music prior to making formal application for graduation. This can be done by presenting

a transcript to the music Advisor and completing the verification form for the minor in music.

Students must maintain a minimum GPA of 2.0 for all course work completed in the minor.

Total of 22 Hours

Code	Title	Hours
MUS 1000	Performance Laboratory (2 semesters)	0
MUS 1010	Concert Attendance (3 semesters)	0
Select one of the following: <sup>1</sup>		1
MUS 1570	Piano Class For Music Majors I	
MUS 1590	Jazz Piano Class	
MUS 2570	Piano Class For Music Majors III	
MUS 2580	Piano Class For Music Majors IV	
MUS 1700	Jazz Fundamentals	2
MUS 2700	Jazz Improvisation I	2
MUS 2710	Jazz Improvisation II	2
MUS 1800	Applied Music (Applied Jazz Music) <sup>2</sup>	8
	or MUS 2800 Applied Music	
Select 4 hours of one of the following:		4
MUS 3020	Jazz Ensemble (4 semesters)	
MUS 3150	Jazz Vocalstra	
MUS 3050	Chamber Music Ensembles (MUS 3050:136)	
MUS 3050	Chamber Music Ensembles (MUS 3050:137)	
MUS 3450	Jazz History And Literature	3
<b>Total Hours</b>		<b>22</b>

<sup>1</sup> Placement test required. Grade of C or better is required.

<sup>2</sup> At least 6 hours must be in the same instrument or voice.

## Keyboard Minor

Admission to the minor program requires the following:

1. approval of the Department of Music; and
2. an approved placement audition level on an acceptable instrument or voice (interview for music business and recording arts minor).

Students electing to pursue a minor in music choose one of the seven minors outlined below. It is the student's responsibility, in consultation with the student's major Advisor and the music Advisor, to see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should ensure that the minor in music is an approved program within their college. Candidates for the minor in music must have their course work verified and approved by the Advisor for the Department of Music prior to making formal application for graduation. This can be done by presenting a transcript to the music Advisor and completing the verification form for the minor in music.

Students must maintain a minimum GPA of 2.0 for all course work completed in the minor.

Total of 22 Hours

Code	Title	Hours
MUS 1000	Performance Laboratory (2 semesters)	0
MUS 1010	Concert Attendance (3 semesters)	0
MUS 1610	Music Theory And Ear Training I <sup>1</sup>	4
MUS 1800	Applied Music (take for a total of eight hours) <sup>2</sup>	8
or MUS 2800	Applied Music	
Select four hours of the following:		4
MUS 3010	University Band (4 semesters)	
MUS 3050	Chamber Music Ensembles (MUS 3050:44)	
MUS 3090	University Orchestra	
MUS 3140	Concert Chorale	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 2410	Music History And Literature I: World Music And Jazz <sup>1</sup>	3
MUS 3580		2
Electives. Select 2 hours of MUS Major level courses only, excluding ensembles		1
<b>Total Hours</b>		<b>22</b>

<sup>1</sup> A grade of C or better is required.<sup>2</sup> At least 6 hours must be in the same instrument or voice.

## Music Business and Recording Arts Minor

Admission to the minor program requires the following:

1. approval of the Department of Music; and
2. an approved placement audition level on an acceptable instrument or voice (interview for music business and recording arts minor).

Students electing to pursue a minor in music choose one of the seven minors outlined below. It is the student's responsibility, in consultation with the student's major Advisor and the music Advisor, to see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should ensure that the minor in music is an approved program within their college. Candidates for the minor in music must have their course work verified and approved by the Advisor for the Department of Music prior to making formal application for graduation. This can be done by presenting a transcript to the music Advisor and completing the verification form for the minor in music.

Students must maintain a minimum GPA of 2.0 for all course work completed in the minor.

Total of 25 Hours

Code	Title	Hours
MUS 1000	Performance Laboratory (one semester taken concurrently with MUS 3270)	0
MUS 1010	Concert Attendance (3 semesters)	0

Select one of the following: <sup>1</sup>		1
MUS 1570	Piano Class For Music Majors I	
MUS 1580	Piano Class For Music Majors II	
MUS 1590	Jazz Piano Class	
MUS 2570	Piano Class For Music Majors III	
MUS 2580	Piano Class For Music Majors IV	
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4
MUS 2270	Recording Techniques	2
MUS 2280	Survey Of The Music Business	3
MUS 3270	Advanced Recording Techniques	2
MUS 3280		3
MUS 3290		1
MUS 4290	(Internships are available for 2, 3, 4, or 6 hours)	6
PHYS 1310		3
<b>Total Hours</b>		<b>25</b>

<sup>1</sup> Placement test required. Grade of C or better is required.<sup>2</sup> A grade of C or better is required.

## Music History and Literature Minor

Admission to the minor program requires the following:

1. approval of the Department of Music; and
2. an approved placement audition level on an acceptable instrument or voice (interview for music business and recording arts minor).

Students electing to pursue a minor in music choose one of the seven minors outlined below. It is the student's responsibility, in consultation with the student's major Advisor and the music Advisor, to see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should ensure that the minor in music is an approved program within their college. Candidates for the minor in music must have their course work verified and approved by the Advisor for the Department of Music prior to making formal application for graduation. This can be done by presenting a transcript to the music Advisor and completing the verification form for the minor in music.

Students must maintain a minimum GPA of 2.0 for all course work completed in the minor.

Total of 22 Hours

Code	Title	Hours
MUS 1000	Performance Laboratory (2 semesters)	0
MUS 1010	Concert Attendance (3 semesters)	0
Select one of the following: <sup>1</sup>		1
MUS 1570	Piano Class For Music Majors I	
MUS 1580	Piano Class For Music Majors II	
MUS 2570	Piano Class For Music Majors III	
MUS 2580	Piano Class For Music Majors IV	
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4



MUS 2410	Music History And Literature I: World Music And Jazz <sup>2</sup>	3
MUS 3410	Music History And Literature II <sup>2</sup>	3
MUS 3420	Music History And Literature III <sup>2</sup>	3
	Music History Class, MUS 4000 level	3
	Electives. Select 5 hours of MUS Major level courses only, excluding ensembles	5
<b>Total Hours</b>		<b>22</b>

<sup>1</sup> Placement test required. Grade of C or better is required.

<sup>2</sup> A grade of C or better is required.

## Music Technology Minor

Admission to the minor program requires the following:

1. approval of the Department of Music; and
2. an approved placement audition level on an acceptable instrument or voice (interview for music business and recording arts minor).

Students electing to pursue a minor in music choose one of the seven minors outlined below. It is the student's responsibility, in consultation with the student's major Advisor and the music Advisor, to see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should ensure that the minor in music is an approved program within their college. Candidates for the minor in music must have their course work verified and approved by the Advisor for the Department of Music prior to making formal application for graduation. This can be done by presenting a transcript to the music Advisor and completing the verification form for the minor in music.

Students must maintain a minimum GPA of 2.0 for all course work completed in the minor.

Total of 22 Hours

Code	Title	Hours
MUS 1000	Performance Laboratory (0 hours - to be taken concurrently with MUS 3270)	0
MUS 1570	Piano Class For Music Majors I	1
MUS 1610	Music Theory And Ear Training I	4
MUS 2260	Electronic Music	2
MUS 2270	Recording Techniques	2
MUS 3260	Advanced Electronic Music	3
MUS 3270	Advanced Recording Techniques	2
MUS 3470		3
MUS 4990	Special Projects (must take a total of 6 hours)	6
PHYS 1310	(taken as one of the Natural Science requirements in the Gen Ed)	3
<b>Total Hours</b>		<b>26</b>

## Music Theory Minor

Admission to the minor program requires the following:

1. approval of the Department of Music; and
2. an approved placement audition level on an acceptable instrument or voice (interview for music business and recording arts minor).

Students electing to pursue a minor in music choose one of the seven minors outlined below. It is the student's responsibility, in consultation with the student's major Advisor and the music Advisor, to see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should ensure that the minor in music is an approved program within their college. Candidates for the minor in music must have their course work verified and approved by the Advisor for the Department of Music prior to making formal application for graduation. This can be done by presenting a transcript to the music Advisor and completing the verification form for the minor in music.

Students must maintain a minimum GPA of 2.0 for all course work completed in the minor.

Total of 22 Hours

Code	Title	Hours
MUS 1000	Performance Laboratory (2 semesters)	0
MUS 1010	Concert Attendance (3 semesters)	0
Select 3 hours of the following: <sup>1</sup>		3
MUS 1570	Piano Class For Music Majors I	
MUS 1580	Piano Class For Music Majors II	
MUS 2570	Piano Class For Music Majors III	
MUS 2580	Piano Class For Music Majors IV	
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4
MUS 1620	Music Theory And Ear Training II <sup>2</sup>	4
MUS 2610	Music Theory And Ear Training III <sup>2</sup>	4
MUS 2620	Music Theory And Ear Training IV <sup>2</sup>	4
MUS 2410	Music History And Literature I: World Music And Jazz <sup>2</sup>	3
<b>Total Hours</b>		<b>22</b>

<sup>1</sup> Placement test required. Grade of C or better is required.

<sup>2</sup> A grade of C or better is required.

## Vocal Minor

Admission to the minor program requires the following:

1. approval of the Department of Music; and
2. an approved placement audition level on an acceptable instrument or voice (interview for music business and recording arts minor).

Students electing to pursue a minor in music choose one of the seven minors outlined below. It is the student's responsibility, in consultation with the student's major Advisor and the music Advisor, to see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should ensure that the minor in music is an approved program within their college. Candidates for the minor in music must have their course work verified and approved by the Advisor for the Department of Music prior to making formal application for graduation. This can be done by presenting



a transcript to the music Advisor and completing the verification form for the minor in music.

Students must maintain a minimum GPA of 2.0 for all course work completed in the minor.

Total of 22 Hours

Code	Title	Hours
MUS 1000	Performance Laboratory (2 semesters)	0
MUS 1010	Concert Attendance (3 semesters)	0
Select one of the following: <sup>1</sup>		1
MUS 1570	Piano Class For Music Majors I	
MUS 1580	Piano Class For Music Majors II	
MUS 2570	Piano Class For Music Majors III	
MUS 2580	Piano Class For Music Majors IV	
MUS 1610	Music Theory And Ear Training I <sup>2</sup>	4
MUS 1800	Applied Music <sup>3</sup>	8
or MUS 2800	Applied Music	
Select four hours of one of the following:		4
MUS 3140	Concert Chorale (4 semesters)	
MUS 3160	Rocket Choristers	
MUS 3180	Glee Club	
MUS 2410	Music History And Literature I: World Music And Jazz <sup>2</sup>	3
Electives. Select 2 hours of MUS Major level courses only, excluding ensembles		2
<b>Total Hours</b>		<b>22</b>

<sup>1</sup> Placement test required. Grade of C or better is required.

<sup>2</sup> A grade of C or better is required.

<sup>3</sup> At least 6 hours must be in the same instrument or voice.

## Department of Philosophy and Religious Studies

John Sarnecki, Department Chair

### Philosophy AT THE UNIVERSITY OF TOLEDO

Philosophy at the University of Toledo is historically oriented, pluralistic department with an outstanding faculty and vibrant graduate program. Our undergraduate program exposes students from all majors to the richness of philosophical thought and the importance of critical thinking, and it gives its majors a deep and broad education in diverse philosophical traditions.

### Religious Studies at the University of Toledo

The Religious Studies Program at the University of Toledo offers undergraduates the opportunity to explore worldwide expressions of religion in an interdisciplinary, non-confessional context. Students will explore the robust traditions of religious practice, ethics, social institutions, sacred texts, rituals, material objects, and the lived experiences that accompany them. We offer both an undergraduate major and minor. Students can opt to focus their studies in the major in focal area such as Jewish Studies, Christian Studies, Islamic Studies,

Interreligious Studies or other areas they design in conjunction with a faculty advisor. We work hard to see that all our majors and minors have a course of study that reflects their career goals and interests so they can flourish professionally and personally.

## Degrees Offered

- B.A. in Philosophy (p. 118)
- B.A. in Religious Studies (p. 120)
- Data and Technology Ethics Certificate (p. 127)
- Environmental Ethics Certificate (p. 128)
- Philosophy Minor (p. 128)
- Religious Studies Minor (p. 128)

### PHIL 1010 Introduction To Logic

[0-3 credit hours]

(not for major credit) An introduction to the symbolic analysis of argument components and structures. Topics include definition, syllogistic reasoning, semantics, sentential logic and probability.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

### PHIL 1020 Critical Thinking

[0-3 credit hours]

(not for major credit) A study of principles and patterns of good reasoning and writing, including the evaluation and construction of arguments and the identification and avoidance of fallacies.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

### PHIL 2000 World Philosophies

[3 credit hours]

Introduction to comparative analysis and interpretation of major themes, methods, and figures in philosophical traditions of Africa, Asia, and the Americas. Topics may include knowledge and wisdom, the relationship between self and world, ethics and the good life, and politics.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, Multicultural Non-US Diversity

### PHIL 2200 Introduction To Philosophy

[3 credit hours]

An introduction to philosophical reflection on such issues as the existence of God, free will, knowledge and objectivity, social justice and moral responsibility. Humanities core course.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

### PHIL 2400 Contemporary Moral Problems

[3 credit hours]

A study of topics such as abortion, euthanasia, environmental responsibility, famine relief, affirmative action and sexuality. Attention is paid to moral argument and the bases of moral decisions.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

**PHIL 3000 Symbolic Logic**

[3 credit hours]

A study of propositional and predicate logic, techniques used to evaluate deductive arguments. Topics may include computability, set theory, Bayesianism and other formal systems with philosophical and mathematical relevance.

**Term Offered:** Spring, Fall**PHIL 3060 Philosophy Of Language**

[3 credit hours]

A historical and critical examination of topics in the philosophy of language such as truth, reference, representation, metaphor and interpretation.

**Term Offered:** Fall**PHIL 3120 Business Ethics**

[3 credit hours]

An examination of the ethical dimensions of the relationships between a business and employees, consumers, other businesses, society, government, the law and the environment.

**Term Offered:** Spring, Summer, Fall**PHIL 3140 Computers And Culture**

[3 credit hours]

A study of the philosophical issues computers raise which affect and reflect human values. Topics include censorship and privacy on the internet, virtual reality and the possibility of artificial intelligence.

**Term Offered:** Spring, Fall**PHIL 3160 Data Science Ethics**

[3 credit hours]

A course which covers ethical and social implications of big data science and management. Topics include big data research ethics, privacy, identity, healthcare, and social justice.

**Term Offered:** Spring, Fall**PHIL 3180 Environmental Ethics**

[3 credit hours]

An examination of our relation and responsibility to the natural environment. Topics include risk assessment, the value of non-human living things, resource use, economics, technology, environmental racism and ecology.

**Term Offered:** Spring, Summer, Fall**PHIL 3210 Ancient And Medieval Philosophy**

[3 credit hours]

A study of ancient and medieval philosophy from the pre-Socratics to Aquinas.

**Term Offered:** Fall**PHIL 3230 Modern Philosophy**

[3 credit hours]

A study of early modern philosophy from Descartes to Kant. Writing intensive course.

**Term Offered:** Spring, Fall**PHIL 3240 Existentialism**

[3 credit hours]

An examination of existentialist philosophy from the 19th Century to the present as represented in the works of Kierkegaard, Nietzsche, Heidegger, Camus, Sartre, de Beauvoir, Fanon and others. Topics may include anxiety, meaning and meaninglessness, freedom, and community.

**Term Offered:** Spring, Fall**PHIL 3310 Science And Society**

[3 credit hours]

A study of twentieth-century science and its relationships with government, industry, religion and medicine, including the emergence of Big Science and the future of science education and research.

**Term Offered:** Spring**PHIL 3370 Medical Ethics**

[3 credit hours]

The application of ethics to the practice of medical professionals. Topics include authority, paternalism, truth-telling, informed consent, health care reform, genetic manipulation, abortion, infanticide and euthanasia.

**Term Offered:** Spring, Summer, Fall**PHIL 3500 Eastern Thought**

[3 credit hours]

An examination of major philosophies of Asia and the Far East, their specific concerns and their relevance to contemporary problems.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**PHIL 3540 Feminism And Philosophy: Love, Sex and Marriage**

[3 credit hours]

This course examines a number of cross-cultural philosophical conceptions of love, sex, and marriage, comparing historical and contemporary beliefs and practices in relation to gender/feminist and ethical theory. A number of philosophical and ethical issues, such as monogamy, cultural and theological contexts, pornography, marriage rights, and consent, will be investigated through readings, videos, and discussion boards, which are meant to encourage students to explore diverse viewpoints, analyze arguments, and cultivate a deeper critical awareness of their own and others' viewpoints.

**Term Offered:** Spring, Summer

Multicultural US Diversity

**PHIL 3560 Aesthetics**

[3 credit hours]

An analysis and evaluation of aesthetic topics such as the definition of art, truth in the arts, the role of representation, the nature of aesthetic value and the character of aesthetic experience.

**Term Offered:** Spring, Fall**PHIL 3570 Philosophy Of Religion**

[3 credit hours]

A critical, philosophical exploration of questions about the nature of religion, including the existence and nature of God, the problem of evil, and the relation between faith and knowledge. Other topics may include the relation of religion to science and morality, as well as the role of religious experience and miracles in religious belief.

**Term Offered:** Spring, Fall**PHIL 3630 Philosophy Of Psychology**

[3 credit hours]

A philosophical examination of problems concerning the nature of mind such as the relation between mind and body, consciousness, free will and personal identity.

**Term Offered:** Fall

**PHIL 3710 Philosophy Of Law**

[3 credit hours]

A study of philosophical issues raised by law such as the foundations of the law, relation of law to morality, obligation to obey the law, the nature of rights, and approaches to legal interpretation.

**Term Offered:** Spring, Summer, Fall**PHIL 3750 Social And Political Philosophy**

[3 credit hours]

A study of classic and contemporary treatments of justice, authority, the relations between individual and community, the meaning of freedom and equality, power and violence, and race and gender.

**Term Offered:** Spring, Fall**PHIL 3760 Crime And Punishment**

[3 credit hours]

A philosophical study of topics such as crime, responsibility, justice and punishment. Special attention is paid to current practices in the criminal justice system.

**Term Offered:** Spring, Fall**PHIL 3900 Seminar**

[3 credit hours]

Topics vary.

**Term Offered:** Spring, Fall**PHIL 4010 Islamic Law and Society**

[3 credit hours]

This course will survey Islamic law in historical and comparative modern contexts. This course will provide (a) basic introduction to the sources and methods of classical Islamic legal interpretation, (b) survey of the most pressing areas in which traditional Islamic norms remain relevant today—criminal law, family law, and commercial law, (c) the challenges and transformations introduced by colonialism, modernity, and the nation-state, and (d) comparison with the American law and the constitution, highlighting comparative interpretive methods such as originalism versus progressivism, and innovative dimensions of Islamic law such as legal pluralism, wide room for local custom, religious diversity, and restorative justice.

**Term Offered:** Spring**PHIL 4210 Ancient Philosophy Seminar**

[3 credit hours]

An intensive study of the texts and arguments of Presocratic philosophers, Plato, Aristotle, or Hellenistic philosophers. Course may be repeated as topics vary.

**Term Offered:** Spring, Fall**PHIL 4230 Modern Philosophy Seminar**

[3 credit hours]

An intensive study of one or more Continental or British philosophers from the sixteenth through eighteenth centuries. Course may be repeated as topics vary.

**Term Offered:** Spring, Fall**PHIL 4240 19th Century European Philosophy**

[3 credit hours]

An intensive study of European philosophy after Kant, including Hegel, Marx, Kierkegaard and Nietzsche.

**Term Offered:** Spring, Fall**PHIL 4250 Phenomenology**

[3 credit hours]

An intensive study of major works from phenomenological philosophers, such as Husserl, Heidegger, Sartre, or Merleau-Ponty. Course may be repeated as topics vary.

**Term Offered:** Spring, Fall**PHIL 4260 Recent European Philosophy**

[3 credit hours]

An examination of texts and problems in the Frankfurt school, post-structuralism, deconstruction and post-modernism, or of such thinkers as Habermas, Foucault, Derrida and Lyotard. Course may be repeated as topics vary.

**Term Offered:** Spring, Fall**PHIL 4270 American Philosophy**

[3 credit hours]

A study of the development of American Philosophy, or one or more of Pierce, James, Dewey, or Mead. Course may be repeated as topics vary.

**Term Offered:** Fall**PHIL 4280 20th Century Analytic Philosophy**

[3 credit hours]

Selected readings from Frege, Russell, Wittgenstein, the Vienna Circle, the Ordinary Language school, and American neo-pragmatists such as Quine, Rorty and Davidson. Course may be repeated as topics vary.

**Term Offered:** Spring, Fall**PHIL 4300 Philosophy Of Natural Science**

[3 credit hours]

A study of scientific inquiry including the structure of scientific explanations, relations of evidence and confirmation, the metaphysics of theoretical entities, and the nature of scientific change and progress.

**Term Offered:** Spring, Fall**PHIL 4400 Ethics Seminar**

[3 credit hours]

Selected topics or philosophers in ethical theory. Course may be repeated as topics vary.

**Term Offered:** Spring**PHIL 4650 Philosophy Of Mind**

[3 credit hours]

Advanced study of issues in the philosophy of mind such as: intentionality and misrepresentation, rationality and interpretation, supervenience and reductionism, folk psychology and eliminative materialism. Course may be repeated as topics vary.

**Term Offered:** Spring**PHIL 4750 Political Philosophy Seminar**

[3 credit hours]

Selected topics or philosophers in political philosophy. Course may be repeated as topics vary.

**Term Offered:** Spring, Fall**PHIL 4900 Advanced Seminar**

[2-4 credit hours]

Topics vary.

**Term Offered:** Spring, Fall**PHIL 4920 Directed Readings**

[1-4 credit hours]

**PHIL 4990 Independent Study - Honors**

[3 credit hours]

**REL 1220 World Religions**

[3 credit hours]

A study of the major religions of the world, with an emphasis on their histories, beliefs and practices

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

**REL 2000 Introduction To Religion**

[3 credit hours]

Critical and thematic study of the concepts, values, practices and world-views intrinsic to the religious life.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**REL 2070 Early Judaism**

[3 credit hours]

Institutions, culture and religion from the earliest times through the Biblical period to the Medieval period.

**REL 2310 Old Testament/Tanakh**

[3 credit hours]

An examination of the history and ideas of the Jewish scriptures within the context of Judaism and their appropriation within Christian traditions.

**Term Offered:** Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**REL 2320 Judaism**

[3 credit hours]

An inductive introduction to the history, beliefs, and practices of Judaism, with an emphasis on various forms of Jewish culture and identity.

**Term Offered:** Spring, Fall**REL 2330 New Testament History And Ideas**

[3 credit hours]

Examination of the history and ideas of the New Testament.

**Term Offered:** Spring

Core Arts &amp; Humanities, OT36 Arts and Humanities

**REL 2380 Topics In Catholic Thought**

[3 credit hours]

Critical examination of selected topics in contemporary Catholic thought and life.

**Term Offered:** Spring, Fall**REL 2410 Christianity**

[3 credit hours]

This course is designed to ground students with the basics of the Christian tradition, with particular focus on the contents of the bible and the dynamics of Christian history. Through careful reading of the assigned material, class discussion, and written assignments, students are expected to attain a wide-based knowledge of Christian self-understanding, values, and theology.

**Term Offered:** Fall**REL 2500 Islam**

[3 credit hours]

An introduction to the academic understanding of Islam. Topics may include; faith, rituals, law (Shari'h), jurisprudence (Figh), theology (Kalam), and stories from the Islamic heritage. Non-Western multicultural course.

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity, Multicultural US Diversity

**REL 2980 Special Topics In Religious Studies**

[3 credit hours]

Special topics courses. Course may be repeated for credit as topics vary.

**Term Offered:** Spring, Fall**REL 3000 Religious Studies Proseminar**

[1 credit hour]

This course enhances students' professional development in fields related to religious studies.

**REL 3080 Jewish Biblical Studies**

[3 credit hours]

An examination of the texts and methods of historical and contemporary Jewish scriptural studies.

**Term Offered:** Spring, Fall**REL 3210 Ancient And Medieval Philosophy**

[3 credit hours]

A study of ancient and medieval philosophy from the pre-Socratics to Aquinas.

**Term Offered:** Fall**REL 3350 The Qur'an And Hadith**

[3 credit hours]

A study of the two main texts for Islamic belief and practice: Qur'an and the Hadith (the tradition of the Prophet Muhammad). Topics include their thematic structure, methods of interpretation, and their unique authority within Islam.

**REL 3420 Christian Ethical Perspectives**

[3 credit hours]

This course will study fundamental ethical concerns in Christian thought, with an extended consideration given to a particular Christian tradition determined by the instructor.

**Term Offered:** Spring**REL 3500 Eastern Thought**

[3 credit hours]

An examination of major philosophies of Asia and the Far East, their specific concerns and their relevance to contemporary problems.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**REL 3510 Comparative Religion: Living Non-Western Religions**

[3 credit hours]

Study of the major attitudes toward life, human existence and the world embodied in such major religions of the world as Buddhism, Confucianism, Hinduism, Islam and Taoism. Non-U.S. Diversity

**REL 3570 Philosophy Of Religion**

[3 credit hours]

A critical, philosophical exploration of questions about the nature of religion, including the existence and nature of God, the problem of evil, and the relation between faith and knowledge. Other topics may include the relation of religion to science and morality, as well as the role of religious experience and miracles in religious belief.

**Term Offered:** Spring, Fall**REL 3580 Contemporary Issues In Islam**

[3 credit hours]

An examination of key contemporary issues facing Islamic thought and culture, such as the changing and contested understandings of religious authority, jihad, role of women, courting, and family norms and the effects on all these of globalization and social media. Course may be repeated for credit as topics vary. Non-Western multicultural course.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**REL 3710 Literature Of The Old Testament**

[3 credit hours]

A study of the Old Testament from the literary point of view, including ancient poetry, history, romance, short story, hymn, prophecy and wisdom writing. Recommended: ENGL 2700 or 2800.

**Term Offered:** Spring, Summer**REL 3900 Seminar-Contemporary Religious Thought**

[3 credit hours]

A critical examination of selected topics in the area of religion.

**Term Offered:** Spring, Fall**REL 3980 Special Topics In Religious Studies**

[3 credit hours]

Special topics courses. Course may be repeated for credit as topics vary.

**Term Offered:** Spring, Fall**REL 4010 Islamic Law and Society**

[3 credit hours]

This course will survey Islamic law in historical and comparative modern contexts. This course will provide (a) basic introduction to the sources and methods of classical Islamic legal interpretation, (b) survey of the most pressing areas in which traditional Islamic norms remain relevant today—criminal law, family law, and commercial law, (c) the challenges and transformations introduced by colonialism, modernity, and the nation-state, and (d) comparison with the American law and the constitution, highlighting comparative interpretive methods such as originalism versus progressivism, and innovative dimensions of Islamic law such as legal pluralism, wide room for local custom, religious diversity, and restorative justice.

**Term Offered:** Spring**REL 4610 Religious Studies Topics In The Humanities**

[3 credit hours]

Cross listings with 4000-level courses offered in the humanities departments. Specific topics vary, and course may be repeated for credit as topics vary. Check course schedules for specific subject and prerequisites.

**Term Offered:** Spring, Fall**REL 4630 Religion, Violence and Peace**

[3 credit hours]

This seminar is a sustained exploration of whether religion is related to the occurrence of violence, peace or community-building, and if so, when and how.

**REL 4820 Anthropology Of Religion**

[3 credit hours]

A cross-cultural approach to the description and analyses of magical and religious beliefs and practices in Asia, Africa, Latin America and Indigenous North America.

**Prerequisites:** ANTH 2800 with a minimum grade of D-**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**REL 4900 Seminar In Religious Studies**

[3 credit hours]

Topics vary. Course may be repeated for credit as topics vary. See adviser for Seminar Request Form.

**Term Offered:** Spring, Summer, Fall**REL 4940 Internship In Religious Studies**

[1-6 credit hours]

Student is placed in a campus or community setting approved by the instructor of record to work on issues pertaining to religion, and analyzes verbally and in writing how religion functioned in this setting.

**Term Offered:** Spring, Summer, Fall**REL 4960 Senior Thesis for Honors**

[3 credit hours]

Prerequisite: Junior standing and consent of program director

**Term Offered:** Spring, Summer, Fall**REL 4980 Special Topics In Religious Studies**

[3 credit hours]

Topics vary. Course may be repeated for credit as topics vary.

**Term Offered:** Spring, Fall**REL 4990 Independent Study In Religious Studies**

[1-4 credit hours]

Directed study in religious studies under the supervision of a religious studies instructor.

**Term Offered:** Spring, Fall

## B.A. in Philosophy

Code	Title	Hours
At least two major courses must be at the 4000-level.		
<b>History of Philosophy</b>		
PHIL 3210	Ancient And Medieval Philosophy	3
PHIL 3230	Modern Philosophy	3
<b>Analytical Philosophy</b> <sup>1</sup>		
Select at least one of the following:		3
PHIL 3000	Symbolic Logic	
PHIL 3060	Philosophy Of Language	
<b>Ethical and Political Theory</b>		
Select at least one of the following:		3
PHIL 3400		
PHIL 3750	Social And Political Philosophy (every year)	
<b>Diverse Philosophical Traditions</b> <sup>1</sup>		

Select at least one of the following:	3
PHIL 3240 Existentialism	
PHIL 3500 Eastern Thought	
PHIL 3540 Feminism And Philosophy: Love, Sex and Marriage	
PHIL 4240 19th Century European Philosophy	
PHIL 4250 Phenomenology	
PHIL 4260 Recent European Philosophy	
PHIL 4270 American Philosophy	
<b>Additional Major Electives</b>	
Select 15 hours of major electives <sup>1</sup>	15
<b>Total Hours</b>	<b>30</b>

<sup>1</sup> These courses should be selected in consultation with the Advisor. Majors planning to pursue graduate study in Philosophy are encouraged to take PHIL 3000, PHIL 3060, PHIL 3400 and PHIL 3750, as well as PHIL 3600 or 4000-level courses in these core areas of philosophy. Specialized programs of study can be designed for majors preparing for professional careers in law, medicine, or business. See the undergraduate advisor for details.

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

	Hours
<b>First Term</b>	
AR 1000 First Year Orientation	1
PHIL 2200 Introduction To Philosophy	3
ENGL 1110 College Composition I	3
Elementary Foreign Language I	4
MATH 1180 Reasoning With Mathematics	3
<b>Hours</b>	<b>14</b>
<b>Second Term</b>	
PHIL 2400 Contemporary Moral Problems	3
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II	4
HIST 1010-1200 Arts/Humanities Core (History)	3
Social Sciences Core	3
<b>Hours</b>	<b>16</b>
<b>Third Term</b>	
PHIL 3210 Ancient And Medieval Philosophy	3
Arts/Humanities Core (Fine Arts)	3
Intermediate Foreign Language I or approved culture course	3
ENGL 2710-2800 Arts/Humanities Core (English Lit)	3
Natural Sciences Core	3
<b>Hours</b>	<b>15</b>
<b>Fourth Term</b>	
PHIL 3230 Modern Philosophy	3
PHIL 3000 Symbolic Logic	3
or PHIL 3060 or Philosophy Of Language	
Intermediate Foreign Language II or approved culture course	3
Social Sciences Core	3

Related or Minor course	3
<b>Hours</b>	<b>15</b>
<b>Fifth Term</b>	
PHIL Major Elective (Ethical or Social Political)	3
Diversity of US	3
Social Sciences Core	3
Natural Sciences Core	3
Natural Sciences Core (Lab)	1
Related or Minor course	3
<b>Hours</b>	<b>16</b>
<b>Sixth Term</b>	
PHIL Major Elective (4000-level Seminar)	3
Natural Sciences Core	3
Related or Minor course	6
Elective	3
<b>Hours</b>	<b>15</b>
<b>Seventh Term</b>	
PHIL Major Elective (4000-level Seminar)	3
PHIL Major Elective (Post-Kantian Philosophy)	3
Related or Minor course	3
Non-US Diversity	3
Elective	3
<b>Hours</b>	<b>15</b>
<b>Eighth Term</b>	
PHIL 2000- Major Elective	3
PHIL4000	
Related or Minor course	3
Elective	8
<b>Hours</b>	<b>14</b>
<b>Total Hours</b>	<b>120</b>

## Honors in Philosophy

- Admission: Junior and senior majors with an overall minimum GPA of 3.3 may work for the citation "honors in philosophy."
- Requirements
 

Upon graduation, the student shall have a 3.6 GPA in philosophy courses. The student shall complete a substantial term paper in each of two courses with two different philosophy faculty members.

  - One paper shall be work completed for a regular 4000-level seminar.
  - One paper shall be an honors thesis completed while registered for PHIL 4990 under the direction of a second faculty member.

Upon the recommendation of the two respective instructors and with the approval of a majority of the philosophy faculty, the student shall be awarded the citation "honors in philosophy."

- PLO 1: Historical Engagement: Students will explain and analyze a variety of figures, concepts, and traditions in the history of philosophy.
- PLO 2: Analysis and Expression: Students will analyze and evaluate problems in accordance with disciplinary norms of clarity,



interpretation, and argumentation; students will be able to present and explain both their own and others reasoning in written and oral formats.

- PLO 3: Critical Engagement: Students will explain and evaluate positions in relation to historical and intellectual context and assumptions.
- PLO 4: Formal Symbolic Systems: Students will recognize and apply relevant techniques of formal logic.
- PLO 5: Creative/Imaginative Thinking: Students will develop creative, original response to philosophical problems.

## B.A. in Religious Studies

**Religious Studies (p. 120)**

**Religious Studies - Christian Studies (p. 120)**

**Religious Studies - Islamic Studies (p. 121)**

**Religious Studies - Interreligious Studies (p. 122)**

**Religious Studies - Philosophy of Religion (p. 122)**

### Religious Studies

All students majoring in Religious Studies must take a minimum of 31 hours in Religious Studies plus 18 hours of related courses. The course requirements for the major are as follows:

Code	Title	Hours
<b>Required Courses</b>		
REL 2000	Introduction To Religion	3
REL 3570	Philosophy Of Religion	3
REL 3000	Religious Studies Proseminar	1

#### Distribution Requirements

At least one course must be taken in each of the three areas listed below. At least one course must be taken at the 3000-4000 level. The student may petition their advisor to have other courses substituted for the list below in fulfillment of the distribution requirement.<sup>1</sup>

#### Group One

REL 2310	Old Testament/Tanakh	
REL 2330	New Testament History And Ideas	
REL 2350		
REL 2410	Christianity	
REL 3420	Christian Ethical Perspectives	
REL 3080	Jewish Biblical Studies	
REL 3670		

#### Group Two

REL 2500	Islam (No longer offered as an elective )	
REL 3350	The Qur'an And Hadith	
REL 3580	Contemporary Issues In Islam	

#### Group Three

REL 3500	Eastern Thought	
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#### Electives

All majors take 15 hours of electives, i.e., any 2000-4000 level REL course not counted toward the above requirements. At least 6 hours of these 15 hours must be taken at the 4000 level. Students may consider directing some of these hours toward a concentration, toward a Religious Studies Internship REL 4940 taken concurrently or after the Proseminar, or toward a Senior Thesis for Honors REL 4960 if pursuing departmental honors.<sup>2</sup>

#### Optional: Concentration Areas

Students may opt to dedicate 12 hours toward a concentration in one of the four sub-fields of religious studies below to receive a BA degree in religious studies with a concentration in this subfield. Students may also opt out of concentrating to receive a BA in religious studies per se. Distribution courses, elective courses, courses in related fields and independent students that align with the concentration in question can all count toward a concentration with prior approval of the Advisor.<sup>3</sup>

*Concentration options include Christian Studies, Islamic Studies, Interreligious Studies, or Philosophy of Religion*

**Total Hours** **31**

## Related Courses

As part of the general College of Arts and Letters requirements, students must take 18 hours of related courses outside the Religious Studies program that have been approved by the student's advisor. A minimum of 9 of these hours must be taken at the 3000 level of above. A minor or major in another department may be used to satisfy the related courses requirement.

### Religious Studies - Christian Studies

All students majoring in Religious Studies must take a minimum of 31 hours in Religious Studies plus 18 hours of related courses. The course requirements for the major are as follows:

Code	Title	Hours
<b>Required Courses</b>		
REL 2000	Introduction To Religion	3
REL 3570	Philosophy Of Religion	3
REL 3000	Religious Studies Proseminar	1

#### Distribution Requirements

At least one course must be taken in each of the three areas listed below. At least one course must be taken at the 3000-4000 level. The student may petition their advisor to have other courses substituted for the list below in fulfillment of the distribution requirement.

#### Group One

REL 2310	Old Testament/Tanakh	
REL 2330	New Testament History And Ideas	
REL 2350		
REL 2410	Christianity	
REL 3420	Christian Ethical Perspectives	
REL 3080	Jewish Biblical Studies	
REL 3670		

#### Group Two

REL 2300		
REL 2500	Islam	



REL 3350	The Qur'an And Hadith
REL 3580	Contemporary Issues In Islam
<b>Group Three</b>	
REL 3500	Eastern Thought

**Electives**

All majors take 15 hours of electives, i.e., any 2000-4000 level REL course not counted toward the above requirements. At least 6 hours of these 15 hours must be taken at the 4000 level. Students may consider directing some of these hours toward a concentration, toward a Religious Studies Internship REL 4940 taken concurrently or after the Proseminar, or toward a Senior Thesis for Honors REL 4960 if pursuing departmental honors.

**Optional: Concentration Areas**

Students may opt to dedicate 12 hours toward a concentration in one of the four sub-fields of religious studies below to receive a BA degree in religious studies with a concentration in this subfield. Students may also opt out of concentrating to receive a BA in religious studies per se. Distribution courses, elective courses, courses in related fields and independent students that align with the concentration in question can all count toward a concentration with prior approval of the Advisor.<sup>3</sup>

*Christian Studies*

Select 12 hours related to the study of Christianity, selected from courses including but not limited to:

REL 2300	
REL 2310	Old Testament/Tanakh
REL 2330	New Testament History And Ideas
REL 2350	
REL 2380	Topics In Catholic Thought
REL 2410	Christianity
REL 3210	Ancient And Medieval Philosophy
REL 3420	Christian Ethical Perspectives
REL 3670	

**Total Hours** 31

**Related Courses**

As part of the general College of Arts and Letters requirements, students must take 18 hours of related courses outside the Religious Studies program that have been approved by the student's advisor. A minimum of 9 of these hours must be taken at the 3000 level of above. A minor or major in another department may be used to satisfy the related courses requirement.

**Religious Studies - Islamic Studies**

All students majoring in Religious Studies must take a minimum of 31 hours in Religious Studies plus 18 hours of related courses. The course requirements for the major are as follows:

Code	Title	Hours
<b>Required Courses</b>		
REL 2000	Introduction To Religion	3
REL 3570	Philosophy Of Religion	3
REL 3000	Religious Studies Proseminar	1

**Distribution Requirements**

At least one course must be taken in each of the three areas listed below. At least one course must be taken at the 3000-4000 level. The student may petition their advisor to have other courses substituted for the list below in fulfillment of the distribution requirement.<sup>1</sup>

**Group One**

REL 2310	Old Testament/Tanakh
REL 2330	New Testament History And Ideas
REL 2350	
REL 2410	Christianity
REL 3420	Christian Ethical Perspectives
REL 3080	Jewish Biblical Studies
REL 3670	

**Group Two**

REL 2300	
REL 2500	Islam
REL 3350	The Qur'an And Hadith
REL 3580	Contemporary Issues In Islam

**Group Three**

REL 3500	Eastern Thought
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**Electives**

All majors take 15 hours of electives, i.e., any 2000-4000 level REL course not counted toward the above requirements. At least 6 hours of these 15 hours must be taken at the 4000 level. Students may consider directing some of these hours toward a concentration, toward a Religious Studies Internship REL 4940 taken concurrently or after the Proseminar, or toward a Senior Thesis for Honors REL 4960 if pursuing departmental honors.<sup>2</sup>

**Optional: Concentration Areas**

Students may opt to dedicate 12 hours toward a concentration in one of the four sub-fields of religious studies below to receive a BA degree in religious studies with a concentration in this subfield. Students may also opt out of concentrating to receive a BA in religious studies per se. Distribution courses, elective courses, courses in related fields and independent students that align with the concentration in question can all count toward a concentration with prior approval of the Advisor.<sup>3</sup>

*Islamic Studies*

Select 12 hours related to the study of Islam, selected from courses including but not limited to:

REL 2300	
REL 2500	Islam
REL 3210	Ancient And Medieval Philosophy
REL 3100	
REL 3350	The Qur'an And Hadith
REL 3580	Contemporary Issues In Islam
REL 4520	

**Total Hours** 31

**Related Courses**

As part of the general College of Arts and Letters requirements, students must take 18 hours of related courses outside the Religious Studies



program that have been approved by the student's advisor. A minimum of 9 of these hours must be taken at the 3000 level or above. A minor or major in another department may be used to satisfy the related courses requirement.

## Religious Studies - Interreligious Studies

All students majoring in Religious Studies must take a minimum of 31 hours in Religious Studies plus 18 hours of related courses. The course requirements for the major are as follows:

Code	Title	Hours
<b>Required Courses</b>		
REL 2000	Introduction To Religion	3
REL 3570	Philosophy Of Religion	3
REL 3000	Religious Studies Proseminar	1

### Distribution Requirements

At least one course must be taken in each of the three areas listed below. At least one course must be taken at the 3000-4000 level. The student may petition their advisor to have other courses substituted for the list below in fulfillment of the distribution requirement.<sup>1</sup>

#### Group One

REL 2310	Old Testament/Tanakh	
REL 2330	New Testament History And Ideas	
REL 2350		
REL 2410	Christianity	
REL 3420	Christian Ethical Perspectives	
REL 3080	Jewish Biblical Studies	
REL 3670		

#### Group Two

REL 2300		
REL 2500	Islam	
REL 3350	The Qur'an And Hadith	
REL 3580	Contemporary Issues In Islam	

#### Group Three

REL 3500	Eastern Thought	
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### Electives

All majors take 15 hours of electives, i.e., any 2000-4000 level REL course not counted toward the above requirements. At least 6 hours of these 15 hours must be taken at the 4000 level. Students may consider directing some of these hours toward a concentration, toward a Religious Studies Internship REL 4940 taken concurrently or after the Proseminar, or toward a Senior Thesis for Honors REL 4960 if pursuing departmental honors.<sup>2</sup>

### Optional: Concentration Areas

Students may opt to dedicate 12 hours toward a concentration in one of the four sub-fields of religious studies below to receive a BA degree in religious studies with a concentration in this subfield. Students may also opt out of concentrating to receive a BA in religious studies per se. Distribution courses, elective courses, courses in related fields and independent students that align with the concentration in question can all count toward a concentration with prior approval of the Advisor.<sup>3</sup>

#### *Interreligious Studies*

Select 12 hours related to the study of interreligion, selected from courses including but not limited to:

REL 3210	Ancient And Medieval Philosophy
REL 3510	Comparative Religion: Living Non-Western Religions
REL 4900	Seminar In Religious Studies
REL 4920	(interreligious focus)
REL 4940	Internship In Religious Studies (interreligious focus)

3 interdisciplinary courses in interreligious studies selected in consultation with the advisor.

**Total Hours** **31**

## Related Courses

As part of the general College of Arts and Letters requirements, students must take 18 hours of related courses outside the Religious Studies program that have been approved by the student's advisor. A minimum of 9 of these hours must be taken at the 3000 level or above. A minor or major in another department may be used to satisfy the related courses requirement.

## Religious Studies - Philosophy of Religion

All students majoring in Religious Studies must take a minimum of 31 hours in Religious Studies plus 18 hours of related courses. The course requirements for the major are as follows:

Code	Title	Hours
<b>Required Courses</b>		
REL 2000	Introduction To Religion	3
REL 3570	Philosophy Of Religion	3
REL 3000	Religious Studies Proseminar	1

### Distribution Requirements

At least one course must be taken in each of the three areas listed below. At least one course must be taken at the 3000-4000 level. The student may petition their advisor to have other courses substituted for the list below in fulfillment of the distribution requirement.<sup>1</sup>

#### Group One

REL 2310	Old Testament/Tanakh	
REL 2330	New Testament History And Ideas	
REL 2350		
REL 2410	Christianity	
REL 3420	Christian Ethical Perspectives	
REL 3080	Jewish Biblical Studies	
REL 3670		

#### Group Two

REL 2300		
REL 2500	Islam	
REL 3350	The Qur'an And Hadith	
REL 3580	Contemporary Issues In Islam	

#### Group Three

REL 3500	Eastern Thought	
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### Electives

All majors take 15 hours of electives, i.e., any 2000-4000 level REL course not counted toward the above requirements. At least 6 hours of these 15 hours must be taken at the 4000 level. Students may consider directing some of these hours toward a concentration, toward a Religious Studies Internship REL 4940 taken concurrently or after the Proseminar, or toward a Senior Thesis for Honors REL 4960 if pursuing departmental honors.<sup>2</sup>

**Optional: Concentration Areas**

Students may opt to dedicate 12 hours toward a concentration in one of the four sub-fields of religious studies below to receive a BA degree in religious studies with a concentration in this subfield. Students may also opt out of concentrating to receive a BA in religious studies per se. Distribution courses, elective courses, courses in related fields and independent students that align with the concentration in question can all count toward a concentration with prior approval of the Advisor.<sup>3</sup>

*Philosophy of Religion*

Select 12 hours related to the study of philosophy of religion, selected from courses including but not limited to:

PHIL 1010	Introduction To Logic or PHIL 102C Critical Thinking
PHIL 2200	Introduction To Philosophy
PHIL 3000	Symbolic Logic
PHIL/REL 3210	Ancient And Medieval Philosophy
PHIL 3230	Modern Philosophy
REL 3570	Philosophy Of Religion
4000-level seminars cross-listed in PHIL/REL	
PHIL/REL 4920	Directed Readings (Philosophy of religion focus)
PHIL/REL 4990	Independent Study - Honors (Philosophy of religion focus)

**Total Hours** **31**

## Related Courses

As part of the general College of Arts and Letters requirements, students must take 18 hours of related courses outside the Religious Studies program that have been approved by the student’s advisor. A minimum of 9 of these hours must be taken at the 3000 level of above. A minor or major in another department may be used to satisfy the related courses requirement.

**Religious Studies (p. 120)**

**Religious Studies - Christian Studies (p. 120)**

**Religious Studies - Islamic Studies (p. 121)**

**Religious Studies - Interreligious Studies (p. 122)**

**Religious Studies - Philosophy of Religion (p. 122)**

**Religious Studies**

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

<b>First Term</b>		<b>Hours</b>
AR 1000	First Year Orientation	1
REL 1220	World Religions	3
ENGL 1110	College Composition I	3
Elementary Foreign Language I		4
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>14</b>
<b>Second Term</b>		
REL 2000	Introduction To Religion	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
HIST 1010-1200 Arts/Humanities Core (History)		3
Social Sciences Core		3
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
Select one course from Group 1:		3
REL 2310	Old Testament/Tanakh	
REL 2330	New Testament History And Ideas	
REL 2350		
REL 2410	Christianity	
REL 3080	Jewish Biblical Studies	
REL 3420	Christian Ethical Perspectives	
REL 3670		
Selecte one course from Group 2:		3
REL 2980	Special Topics In Religious Studies (Intro to Islam)	
REL 3350	The Qur’an And Hadith	
REL 3580	Contemporary Issues In Islam	
Intermediate Foreign Language I or approved culture course		3
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
Natural Sciences Core		3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
REL 3570	Philosophy Of Religion	3
Select one course from Group 3:		3
REL 3500	Eastern Thought	
Intermediate Foreign Language II or approved culture course		3
Social Sciences Core		3
Arts/Humanities Core (Fine Arts)		3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
REL Major Elective		6
Elective (WAC)		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
Related or Minor course		3
<b>Hours</b>		<b>16</b>



**Sixth Term**

REL 3000	Religious Studies Proseminar	1
REL Major Elective		3
Elective		3
Related or Minor course		3
Social Sciences Core		3
Diversity of US		3
<b>Hours</b>		<b>16</b>

**Seventh Term**

REL 4XXX Major Elective, REL seminar, Internship, or Honors Thesis		3
Related or Minor course		3
Elective		9
<b>Hours</b>		<b>15</b>

**Eighth Term**

REL 4XXXX Seminar, Internship, or Honors Thesis		3
Related or Minor course 3000-4000 level		6
Elective		4
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>120</b>

**Religious Studies - Christian Studies**

Below is a sample plan of study. Consult your degree audit for your program requirements.

<b>First Term</b>		<b>Hours</b>
AR 1000	First Year Orientation	1
REL 1220	World Religions	3
ENGL 1110	College Composition I	3
Elementary Foreign Language I		4
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>14</b>
<b>Second Term</b>		
REL 2000	Introduction To Religion	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
HIST 1010-1200 Arts/Humanities Core (History)		3
Social Sciences Core		3
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
Select one course from Group 1:		3
REL 2310	Old Testament/Tanakh	
REL 2330	New Testament History And Ideas	
REL 2350		
REL 2410	Christianity	
REL 3080	Jewish Biblical Studies	
REL 3420	Christian Ethical Perspectives	
REL 3670		
Select one course from Group 2:		3

REL 2300		
REL 2980	Special Topics In Religious Studies (Intro to Islam)	
REL 3350	The Qur'an And Hadith	
REL 3580	Contemporary Issues In Islam	
Intermediate Foreign Language I or approved culture course		3
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
Natural Sciences Core		3
<b>Hours</b>		<b>15</b>

**Fourth Term**

REL 3570	Philosophy Of Religion	3
Select one course from Group 3:		3
REL 3500	Eastern Thought	
Intermediate Foreign Language II or approved culture course		3
Social Sciences Core		3
Arts/Humanities Core (Fine Arts)		3
<b>Hours</b>		<b>15</b>

**Fifth Term**

REL 2380	Topics In Catholic Thought (1st of 4 electives to concentrate)	3
REL 3000	Religious Studies Proseminar	1
Elective (WAC)		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
Related or Minor course		3
<b>Hours</b>		<b>14</b>

**Sixth Term**

REL 2330	New Testament History And Ideas (2nd of 4 electives to concentrate)	3
Elective		3
Related or Minor course		3
Social Sciences Core		3
Diversity of US		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

REL 4960	Senior Thesis for Honors (On Christianity - 3rd of 4 electives to concentrate)	3
REL 4940	Internship In Religious Studies (On Christianity - 4th of 4 electives to concentrate)	3
Related or Minor course		3
Elective		9
<b>Hours</b>		<b>18</b>

**Eighth Term**

Related or Minor course 3000-4000 level		6
Elective		4

REL 4900	Seminar In Religious Studies (Or other 2XXX-4XXX REL elective)	3
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>120</b>

Arts/Humanities Core (Fine Arts)	3
<b>Hours</b>	<b>15</b>

### Religious Studies - Islamic Studies

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term	Hours
AR 1000 First Year Orientation	1
REL 1220 World Religions	3
ENGL 1110 College Composition I	3
Elementary Foreign Language I	4
MATH 1180 Reasoning With Mathematics	3
<b>Hours</b>	<b>14</b>

Second Term	Hours
REL 2000 Introduction To Religion	3
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II	4
HIST 1010-1200 Arts/Humanities Core (History)	3
Social Sciences Core	3
<b>Hours</b>	<b>16</b>

Third Term	Hours
Select one course from Group 1:	3
REL 2310 Old Testament/Tanakh	
REL 2330 New Testament History And Ideas	
REL 2350	
REL 2410 Christianity	
REL 3080 Jewish Biblical Studies	
REL 3420 Christian Ethical Perspectives	
REL 3670	
Select one course from Group 2:	3
REL 2300	
REL 2980 Special Topics In Religious Studies (Intro to Islam)	
REL 3350 The Qur'an And Hadith	
REL 3580 Contemporary Issues In Islam	
Intermediate Foreign Language I or approved culture course	3
ENGL 2710-2800 Arts/Humanities Core (English Lit)	3
Natural Sciences Core	3
<b>Hours</b>	<b>15</b>

Fourth Term	Hours
REL 3570 Philosophy Of Religion	3
Select one course from Group 3:	3
REL 3500 Eastern Thought	
Intermediate Foreign Language II or approved culture course	3
Social Sciences Core	3

Fifth Term	Hours
REL Major Elective: REL 3100 Islam (1st of 4 electives to concentrate)	3
Elective (WAC): recommend REL 3210: Ancient and Medieval	3
Natural Sciences Core	3
Natural Sciences Core (Lab)	1
Related or Minor course	3
REL 3350 The Qur'an And Hadith (2nd of 4 electives to concentrate)	3
<b>Hours</b>	<b>16</b>

Sixth Term	Hours
REL 3000 Religious Studies Proseminar	1
REL Major Elective: REL 3580 Contemporary Issues in Islam (3rd of 4 electives to concentrate)	3
Elective	3
Related or Minor course	3
Social Sciences Core	3
Diversity of US	3
<b>Hours</b>	<b>16</b>

Seventh Term	Hours
REL 4XXX Major Elective, REL seminar, Internship, or Honors Thesis (on Islamic studies, 4th of 4 electives to concentrate)	3
Related or Minor course	3
Elective	9
<b>Hours</b>	<b>15</b>

Eighth Term	Hours
Related or Minor course 3000-4000 level	6
REL 4520 or other REL elective	3
Elective	4
<b>Hours</b>	<b>13</b>
<b>Total Hours</b>	<b>120</b>

### Religious Studies - Interreligious Studies

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term	Hours
AR 1000 First Year Orientation	1
REL 1220 World Religions	3
ENGL 1110 College Composition I	3
Elementary Foreign Language I	4
MATH 1180 Reasoning With Mathematics	3
<b>Hours</b>	<b>14</b>

Second Term	Hours
REL 2000 Introduction To Religion	3
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II	4



For HIST core: HIST 3980 Muslims, Jews and Christians in Medieval Spain	3
Social Sciences Core	3
<b>Hours</b>	<b>16</b>
<b>Third Term</b>	
Select one course from Group 1:	3
REL 2310 Old Testament/Tanakh	
REL 2330 New Testament History And Ideas	
REL 2350	
REL 2410 Christianity	
REL 3080 Jewish Biblical Studies	
REL 3420 Christian Ethical Perspectives	
REL 3670	
Select one course from Group 2:	3
REL 2300	
REL 2980 Special Topics In Religious Studies (Intro to Islam)	
REL 3350 The Qur'an And Hadith	
REL 3580 Contemporary Issues In Islam	
Intermediate Foreign Language I or approved culture course	3
ENGL 2710-2800 Arts/Humanities Core (English Lit)	3
Natural Sciences Core	3
<b>Hours</b>	<b>15</b>
<b>Fourth Term</b>	
REL 3570 Philosophy Of Religion	3
Select one course from Group 3:	3
REL 3500 Eastern Thought	
Intermediate Foreign Language II or approved culture course	3
Social Sciences Core	3
Arts/Humanities Core (Fine Arts)	3
<b>Hours</b>	<b>15</b>
<b>Fifth Term</b>	
Elective (WAC)	3
REL 3210 Ancient And Medieval Philosophy (1st of 4 electives to concentrate, 2nd WAC)	3
REL 3510 Comparative Religion: Living Non-Western Religions (2nd of 4 electives to concentrate)	3
Natural Sciences Core	3
Natural Sciences Core (Lab)	1
Related or Minor course	3
<b>Hours</b>	<b>16</b>
<b>Sixth Term</b>	
REL 3000 Religious Studies Proseminar	1
Elective	3
REL 4630 Religion, Violence and Peace (3rd of 4 electives to concentrate)	3
Related or Minor course: recommend FILM 3980, Cinema and the Sacred	3
Social Sciences Core	3

Diversity of US	3
<b>Hours</b>	<b>16</b>
<b>Seventh Term</b>	
REL 4XXX Major Elective, REL seminar, Internship, or Honors Thesis (on interreligion - 4th of 4 electives to concentrate)	3
Related or Minor course: recommend PJS 2000 Introduction to Peace Studies	3
Elective	9
<b>Hours</b>	<b>15</b>
<b>Eighth Term</b>	
Related or Minor course 3000-4000 level	6
Elective	4
REL 4920 or other REL elective	3
<b>Hours</b>	<b>13</b>
<b>Total Hours</b>	<b>120</b>

## Religious Studies - Philosophy of Religion

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

First Term	Hours
AR 1000 First Year Orientation	1
REL 1220 World Religions	3
ENGL 1110 College Composition I	3
Elementary Foreign Language I	4
MATH 1180 Reasoning With Mathematics	3
<b>Hours</b>	<b>14</b>
<b>Second Term</b>	
REL 2000 Introduction To Religion	3
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II	4
HIST 1010-1200 Arts/Humanities Core (History)	3
Social Sciences Core	3
<b>Hours</b>	<b>16</b>
<b>Third Term</b>	
Select one course from Group 1:	3
REL 2310 Old Testament/Tanakh	
REL 2330 New Testament History And Ideas	
REL 2350	
REL 2410 Christianity	
REL 3080 Jewish Biblical Studies	
REL 3420 Christian Ethical Perspectives	
REL 3670	
Select one course from Group 2:	3
REL 2300	
REL 2980 Special Topics In Religious Studies (Intro to Islam)	
REL 3350 The Qur'an And Hadith	
REL 3580 Contemporary Issues In Islam	

Intermediate Foreign Language I or approved culture course	3
ENGL 2710-2800 Arts/Humanities Core (English Lit)	3
Natural Sciences Core	3
<b>Hours</b>	<b>15</b>

**Fourth Term**

REL 3570 Philosophy Of Religion	3
Select one course from Group 3:	3
REL 3500 Eastern Thought	
Intermediate Foreign Language II or approved culture course	3
Social Sciences Core	3
Arts/Humanities Core (Fine Arts)	3
<b>Hours</b>	<b>15</b>

**Fifth Term**

REL Major Elective: PHIL 1010 Introduction to Logic and REL 3210, Ancient and Medieval (1st and 2nd of 4 electives to concentrate)	6
Elective (WAC): recommend PHIL 3230 Modern Philosophy	3
Natural Sciences Core	3
Natural Sciences Core (Lab)	1
Related or Minor course	3
<b>Hours</b>	<b>16</b>

**Sixth Term**

REL 3000 Religious Studies Proseminar	1
Elective	3
Related or Minor course	3
Social Sciences Core	3
Diversity of US	3
REL 4630 Religion, Violence and Peace (3rd of 4 electives to concentrate)	3
<b>Hours</b>	<b>16</b>

**Seventh Term**

REL 4960 Senior Thesis for Honors (on philosophy of religion - 4th of 4 electives to concentrate)	3
Related or Minor course	3
Elective	9
<b>Hours</b>	<b>15</b>

**Eighth Term**

REL 4XXXX Seminar or Internship or other REL elective	3
Related or Minor course 3000-4000 level	6
Elective	4
<b>Hours</b>	<b>13</b>
<b>Total Hours</b>	<b>120</b>

## Honors in Religious Studies

Meet with the departmental major advisor to discuss the qualifications and to develop a plan to meet the honors requirements. May be combined with any concentration or not. Requires:

1. A 3.0 cumulative GPA and junior or senior status in order to seek honors

2. A 3.4 minimum cumulative GPA in REL courses. Transfer courses are not included
3. Honors Thesis: REL 4960
4. Paper from 4000-level Honors seminar course.

- PLO 1: Methods: Students will identify and apply various methods used in the academic study of religion.
- PLO 2: Breadth of Knowledge: Students will explain the fundamental worldview, practices, and history of at least three major religious traditions, including but not limited to Hinduism, Buddhism, Judaism, Christianity, and Islam.
- PLO 3: Depth of Knowledge: Students will develop competence in a recognized area of concentration within the academic study of religion (e.g., Islamic Studies; Philosophy of Religion; Religion in the Public Sphere).
- PLO 4: Critical Engagement: Students will explain and evaluate theories, concepts, and materials in relation to historical and cultural context in a non-dogmatic manner.
- PLO 5: Analysis and Expression: Students will analyze and evaluate concepts and problems in religious thought in accordance with disciplinary norms of clarity, interpretation, and argumentation.
- PLO 6: Application: Students will apply resources and methods of the academic study of religion to other academic disciplines or matters of public interest.

## Data and Technology Ethics Certificate

Code	Title	Hours
<b>1. Logical and Ethical Foundations</b>		
Select one of the following:		3
PHIL 1010	Introduction To Logic	
	or PHIL 1020Critical Thinking	
	or PHIL 2400Contemporary Moral Problems	
<b>2. Professional Ethics <sup>1</sup></b>		
Select one of the following:		3
PHIL 3160	Data Science Ethics	
	or PHIL 331C Science And Society	
<b>3. Applied Ethics and Philosophy <sup>2</sup></b>		
Select one of the following:		3
PHIL 3000	Symbolic Logic	
	or PHIL 3060Philosophy Of Language	
	or PHIL 3140Computers And Culture	
	or PHIL 3400	
	or PHIL 3630Philosophy Of Psychology	
<b>Total Hours</b>		<b>9</b>

<sup>1</sup> Students may use the unused option in the Professional Ethics as an Applied Ethics option.

<sup>2</sup> This list is recommended for students, however, any upper division Philosophy course at the 3000-4000 level can serve as an Applied Ethics course.



First Term		Hours
PHIL 1010	Introduction To Logic	3
<b>Hours</b>		<b>3</b>
Second Term		Hours
PHIL 3160	Data Science Ethics	3
<b>Hours</b>		<b>3</b>
Third Term		Hours
PHIL 3000	Symbolic Logic	3
<b>Hours</b>		<b>3</b>
<b>Total Hours</b>		<b>9</b>

- **Subject Expertise:** Students will be able to define and explain ethical issues associated with the development and application of data science methods in technology and contemporary society.
- **Critical Engagement:** Students will analyze and evaluate positions and arguments with respect to the ethical employment of data science methods in the spheres of personal ethics, public policy, privacy and society.
- **Analysis and Expression:** Students will be able to develop, articulate and argue for their own positions regarding the ethical use of data science and analytics in contemporary and future applications. Student will be able to express and explain their reasoning according to the standards of philosophical discourse.
- **Application:** Students will be able to extend their use of moral and ethical reasoning to novel areas of inquiry for which philosophical methods offer the opportunity for input and discussion.

## Environmental Ethics Certificate

Code	Title	Hours
1. Ethical Foundations		3
PHIL 2400	Contemporary Moral Problems or PHIL 200C World Philosophies or PHIL 220C Introduction To Philosophy	
2. Professional Ethics		3
PHIL 3180	Environmental Ethics	
3. Applied Ethics <sup>1</sup>		3
PHIL 3120	Business Ethics or PHIL 337C Medical Ethics or PHIL 340C or PHIL 356C Aesthetics	
<b>Total Hours</b>		<b>9</b>

<sup>1</sup> This list is recommended for students, however, any upper division Philosophy course at the 3000-4000 level can serve as an Applied Ethics course.

- **Subject Expertise:** Students will be able to define and explain key debates about our ethical relation to the land and competing approaches to our responsibility to maintain and manage human and ecological interactions.
- **Critical Engagement:** Students will be able to critically evaluate and defend arguments and positions in environmental ethics, including

concepts involving sustainability, environmental conservation, animal and land-ethics, and responsible stewardship of the environment.

- **Analysis and Expression:** Students will be able to articulate and defend their own positions in environmental moral controversies and responsibilities including in particular questions over the balance between consumption and conservation. Students will be able to explain their reasoning according to the historical and intellectual context of discussions concerning environmental ethics.
- **Application:** Students will be able to use philosophical argument in the consideration of novel and ongoing questions about topics involving the environment and its management.

## Philosophy Minor

Specific predesigned programs of study are available in the following areas:

- Prelaw
- Philosophy and medicine
- Philosophy and education
- Philosophy of natural science
- Philosophy of social science

Also available is a philosophy minor with honors. Specific requirements are:

1. Requirements, list under the "Requirements" tab.
2. At least two courses at the 4000 level.
3. Either an honors section of a 3000-level course or a 3000-level course taken under an honors contract.
4. A minimum GPA of 3.3 in philosophy.

A minor in Philosophy complements a variety of University major programs in the humanities, the social and natural sciences, education and business. All minors in Philosophy must meet the following requirements:

1. 21 hours in philosophy with a minimum GPA of 2.0.
2. PHIL 3210 or PHIL 3230.
3. At least one course numbered 4000 or above.
4. No more than one independent study, PHIL 4920, will count toward the completion of the minor.
5. The program of study must be approved by the department undergraduate Adviser and verified before graduation.

## Religious Studies Minor

The University of Toledo offers a Religious Studies Minor program. All students minoring in Religious must take a minimum of 18 hours in Religious Studies according to the following program:

Code	Title	Hours
<b>Required Courses</b>		
REL 2000	Introduction To Religion	3
REL 3570	Philosophy Of Religion	3
Recommended but not required: Proseminar		

### Distribution Requirements



Select one course each of the three of the following distributions. See major for details.	9
<i>Group One: Judaism and Christianity</i>	
<i>Group Two: Islam</i>	
<i>Group Three: Eastern (Asian) Religions</i>	
<b>Elective Course</b>	
Select one course at the 4000 level. See major for details.	3
<b>Total Hours</b>	<b>18</b>

## Department of Political Science

### Political Science cONTACTS

Jetsabe Caceres, Chair  
 Sam Nelson, Undergraduate Advisor, Pre-law Advisor  
 Renee Heberle, Undergraduate Honors in Political Science

### Advanced Placement Program

Refer to the University of Toledo's Registrar page at [https://www.utoledo.edu/offices/registrar/student\\_records/advan\\_credits.html](https://www.utoledo.edu/offices/registrar/student_records/advan_credits.html) for specific information on minimum scores and credits awarded for Advanced Placement examinations administered by the College Board Advanced Placement Program.

### Degrees Offered

- B.A. in Political Science (p. 133)
- Minor in Political Science (p. 136)
- Minor in Public Administration (p. 137)

#### PSC 1200 American National Government

[3 credit hours]

An introductory survey of the institutions, processes, and politics of the government of the United States and its relationship to state governments. Required primary texts include the United States Constitution, Declaration of Independence, a minimum of five selected Federalist Papers, Gettysburg Address, Emancipation Proclamation, and Martin Luther King Jr.'s Letter from Birmingham Jail. The course adheres to appropriate university, state, and federal guidelines on assessment, content, and transferability.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

#### PSC 1710 Current International Problems

[3 credit hours]

A course designed to give the student a perspective on world affairs through an examination of some contemporary international problems like war, human rights, democratization, regional politics, and global health and the environment.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

#### PSC 2210 Women And Politics

[3 credit hours]

An exploration of women and gender relations in US political life. Special attention is paid to differences among women, their socializing experiences, political power bases, and legal status.

Multicultural US Diversity

#### PSC 2300 Principles Of State And Local Government

[3 credit hours]

A study of the political processes and institutions of American state and local governments, with attention given to selected areas of public policy and intergovernmental relations.

**Term Offered:** Spring, Summer, Fall

#### PSC 2400 Topics in Political Science

[3 credit hours]

Examination of current topics in Political Science. Area and topic to be determined by instructor.

**Term Offered:** Spring, Fall

#### PSC 2600 Principles of Comparative Politics

[3 credit hours]

How can we explain the vast array of political systems around the world? This course examines the political systems of various countries and the internal and external factors shaping their political decisions. We will focus on institutional arrangements at the country level and the shaping forces behind their design, as well as on broad global topics affecting national politics

**Term Offered:** Spring, Fall

#### PSC 2660 African Politics

[3 credit hours]

The character and development of African political institutions and processes with a special emphasis on patterns in the post-independence period and prospects for the future.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

#### PSC 2700 Principles Of International Relations

[3 credit hours]

An examination of the theoretical and methodological foundations of the international system. Through case studies, students will analyze and predict issues of cooperation and competition among states. For example, why does war occur? Why does the international system have particular international institutions rather than others? What best explains a state's foreign policy?

**Term Offered:** Spring, Summer, Fall

#### PSC 2770 Great Decisions: America's Foreign Policy

[1 credit hour]

(1 hour) An examination of key U.S. foreign policy issues as decided by the Foreign Policy Association, which takes place both in a classroom setting and through a speaker series with public discussions.

**Term Offered:** Fall

#### PSC 2780 Political Science and Pop Culture

[3 credit hours]

(3 hours) This course critically examines the role that politics and pop culture play in creating and shaping each other and the roles that each play in our lives. This course also acts as an overview of some of the major issues in political science such as democratization, war, and human rights.

**Term Offered:** Spring, Fall



**PSC 2800 Principles Of Political Theory**

[3 credit hours]

This course investigates core concepts in the history of political theory such as justice, liberty, and equality. We discuss how and why the influence of certain authors and ideas persists. Contemporary issues are interpreted using these authors and ideas in order to strengthen critical thinking skills and broaden students' thinking about politics.

**Term Offered:** Spring, Fall**PSC 3150 Research and Writing in Political Science**

[3 credit hours]

This course introduces the student to academic writing and research techniques in the political science discipline. Topics covered include: research ethics, scholarly literature review, peer-review process, research questions and research design, methodological approaches, and data analysis, among others.

**Term Offered:** Spring**PSC 3210 Political Parties**

[3 credit hours]

Why are political parties central to organizing democracy? This course examines how they set the terms of public debate, mobilize citizens, inform voter preferences, and shape policy.

**Term Offered:** Spring, Fall**PSC 3250 Public Opinion**

[3 credit hours]

This course explores the role of public opinion in American politics. It also develops data analysis skills and familiarizes students with survey development.

**Term Offered:** Spring, Fall**PSC 3270 Campaign and Elections**

[3 credit hours]

Campaigns and elections are vital components of democracy in the United States. In this course, we examine how candidates, parties, and citizens participate in the electoral process. Topics covered throughout the semester include candidate recruitment, voting behavior, advocacy groups, campaign finance, and the impact of new technology on voter mobilization.

**Term Offered:** Spring, Fall**PSC 3280 Race and American Politics**

[3 credit hours]

This course examines the role that race plays in the development of American politics. The class investigates definitions of race, how they have evolved, and how they continue to influence policy debates. This seminar assesses the impact that different racial groups, and their struggles for equality, have had on American democracy. This course examines the leading theoretical frameworks and empirical findings to analyze the relationship between race and American political development.

**Term Offered:** Spring, Summer, Fall  
Multicultural US Diversity**PSC 3410 Principles of Public Policy**

[3 credit hours]

This course is an introduction to public policy. It is focused on the factors that affect policymaking in the United States.

**Term Offered:** Spring, Summer, Fall**PSC 3500 Principles Of Law**

[3 credit hours]

An overview of the politics of law. We examine such questions as the sources and existence of law, the legal process in civil and criminal cases, the nature of rights and the search for justice through participation in the legal system. Addresses specific issues such as plea bargaining and jury trials, personal injury lawsuits, national security and police powers, and the nomination and confirmation of federal judges.

**Term Offered:** Spring, Summer, Fall**PSC 3510 Constitutional Law I**

[3 credit hours]

Examines the political and institutional role of the U.S. Supreme Court in the development of the American legal system, the separation of powers between the executive, legislative, and judicial branches of the federal government, and the relationship between the federal government and the states. The course focuses on the analysis of Supreme Court cases as well as political science and legal scholarship.

**Term Offered:** Spring, Fall**PSC 3520 Constitutional Law and Politics II**

[3 credit hours]

Examines the political and institutional role of the Supreme Court in the development of the U.S. system of civil liberties, the relationship between judicial decisions and state actions affecting rights such as free speech, religion, and privacy, and the underlying theories of civil liberty in a democratic society. The course focuses on the analysis of Supreme Court cases as well as political science and legal scholarship.

**Term Offered:** Spring**PSC 3600 Fascism and Populism in Comparative Perspective**

[3 credit hours]

A comparative survey of historical fascist regimes and contemporary populist governance, mainly in Europe and Latin America. Contemporary populist rule is frequently equated with fascism but the differences are significant. In this course we will examine the differences and similarities between the two regime types.

**PSC 3730 American Foreign Policy**

[3 credit hours]

An examination of the American foreign policy-making process as well as an analysis of the major problems facing the United States in its interaction with the international environment.

**Prerequisites:** (PSC 1200 with a minimum grade of D- or PSC 1300 with a minimum grade of D-) or (PSC 1400 with a minimum grade of D- or PSC 1710 with a minimum grade of D-) or PSC 2700 with a minimum grade of D-**PSC 3790 Model United Nations/Model European Union**

[1 credit hour]

This is a faculty-advised, student-led simulation course. Students are exposed to the decision-making procedures of one of two major international organizations: The United Nations or The European Union. Through role-play, students will represent countries, delegates, prime ministers, foreign ministers, and government officials. Whenever possible, the organization represented in a given semester (UN or EU) will be chosen based on the opportunity to attend a conference where students will apply the concepts learned throughout the semester.

**Term Offered:** Spring, Summer, Fall

**PSC 3800 Sexual Politics**

[3 credit hours]

This course critically examines gender, sex and sexuality as identities, practices, and relationships. Through readings in feminist political theory and history, we study state practices, social norms, and historical movements for change to understand why and how various forms of gender, sex and sexuality become normal or are challenged in unexpected ways.

**Term Offered:** Spring, Fall**PSC 3820 Contemporary Political Ideas**

[3 credit hours]

Surveys developments and themes in political theory since the early 20th century. Particular issues addressed include bureaucracy, mass society, state and civil violence, and identity politics.

**Term Offered:** Spring**PSC 3850 Sports, Politics and Policy**

[3 credit hours]

This course explores the intersection of sports with politics and policy-making. Topics covered include sports and nationalism, sports and international diplomacy, globalization and sports, economic development and sport stadiums, baseball and antitrust law, Title IX and women's athletics, college athletics and race, and athletes and political advocacy.

**PSC 3990 Independent Study For Honors Students**

[3 credit hours]

Individual reading and research in selected topics for honors students.

**Term Offered:** Spring, Summer, Fall**PSC 4220 Advocacy Groups in US Politics**

[3 credit hours]

This course investigates the role of advocacy groups in American politics. It develops practical lobbying skills through experiential learning and covers topics such as the role of advocacy groups in campaigns and elections, grass roots mobilization, and agenda setting.

**Term Offered:** Spring, Fall**PSC 4230 Presidency**

[3 credit hours]

Presidents enjoy special prominence in the American political system. However, they are strongly influenced by their interactions with other political institutions, such as Congress, courts, the bureaucracy, and political parties. This course examines the presidency's original design and how the office has developed over time. We also investigate contemporary cases and controversies in presidential power.

**Term Offered:** Spring**PSC 4280 U.s. Congress**

[3 credit hours]

Despite its key role in our political system, the U.S. Congress is not well understood by the public. This course examines how it works: the committee system, parties, and arcane legislative procedures. We consider topics like the impact of party polarization on congressional gridlock, the impact of divided government on policymaking, and how to improve representation.

**Term Offered:** Spring, Summer, Fall**PSC 4300 Principles of Public Administration**

[3 credit hours]

This course provides an overview of public administration. It addresses organization theory, decision making, budgeting, public policy, and the changing role of public institutions. It covers important democratic, professional, ethical and human values that are central to public administration.

**PSC 4320 Urban Policy & Administration**

[3 credit hours]

What does it take to govern a city and its environs? In this course, we examine the balance between the pressing needs of a city and the many economic and political constraints that citizens, leaders, and experts must navigate to achieve their goals.

**Term Offered:** Spring, Summer, Fall**PSC 4340 Environmental Policy**

[3 credit hours]

Policy for air and water pollution control, hazardous wastes, nuclear wastes. Examination of EPA, Congressional committees, state and city agencies. Some international issues.

**Term Offered:** Fall**PSC 4360 Ethics In Public Policy And Administration**

[3 credit hours]

Examination of values and principles which guide public policy formation and public administration. Applications of philosophical concepts to policy problems and the responsibilities of public administrators will be emphasized.

**Term Offered:** Spring, Summer, Fall**PSC 4380 Fundraising**

[3 credit hours]

This course examines the theoretical, practical and ethical issues related to public and nonprofit organizations fundraising. This course will prepare students who plan to work in public and nonprofit organizations to win and manage grants as well as philanthropic donations from multiple sources.

**Term Offered:** Spring, Summer, Fall**PSC 4410 Public and Nonprofit Management**

[3 credit hours]

This course examines management techniques, organizational design, strategic planning and the theoretical and practical behavioral skills that are necessary for effective public and nonprofit management. These skills include communication, organizational, and leadership skills within public and nonprofit organizations.

**Term Offered:** Spring, Summer, Fall**PSC 4420 Political Determinants of Health**

[3 credit hours]

An examination of the political determinants of health, that is, the upstream political forces and policy decisions that are the causal sources of the social conditions that lead to health inequities. This course introduces the importance of power, politics, advocacy, and policy in public health. Students will learn models of health equity and the political determinants of health and apply these to contemporary case studies with particular attention to the health effects of racism.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**PSC 4430 Human Resources Management in Public and Nonprofit Organizations**

[3 credit hours]

This course is a study of human resource management in public and nonprofit organizations. The course explores broad themes within public personnel administration such as recruitment, retention, motivation, and diversity to provide students with the opportunity to develop technical skills necessary for effectively managing human resources in contemporary public agencies, including government and nonprofit organizations.

**Term Offered:** Spring, Summer, Fall**PSC 4440 Budgeting And Financial Administration**

[3 credit hours]

An examination of the institutions and techniques of financial administration, including government accounting, budgeting, financial management and government choice.

**Term Offered:** Spring, Summer, Fall**PSC 4480 Introduction to Nonprofits**

[3 credit hours]

This course provides an overview of the voluntary sector with an emphasis on the historical, philosophical, and theoretical justifications of the nonprofit sector, voluntary action, and philanthropy. The course will explore the administration and management of nonprofit organizations as well as the impact nonprofit organizations have on public policy.

**Term Offered:** Spring, Summer, Fall**PSC 4550 CONTEMPORARY ISSUES IN LAW AND POLITICS**

[3 credit hours]

Examines current controversies in US law and politics drawing on recent research in political theory, constitutional history, and legal doctrine. Includes issues such as freedom of speech, presidential war powers, and religious freedom.

**Term Offered:** Spring, Fall**PSC 4560 Law And Public Administration**

[3 credit hours]

Survey of law topics that are relevant for managers of public and nonprofit organizations.

**Term Offered:** Spring, Summer, Fall**PSC 4590 Law, Policy And The Politics of Sexuality**

[3 credit hours]

This course explores the public policies that affect the lesbian, gay, bisexual and transgender communities in the United States and in other countries. It examines the factors that affect policymaking in this area.

**Term Offered:** Spring, Fall**PSC 4640 The European Union**

[3 credit hours]

An analysis of the evolution, institutional structure, and operation of the European Union. Issue areas include human rights, trade, migration and refugees, international and domestic law, and foreign policy.

**Term Offered:** Spring, Fall**PSC 4660 Politics of Africa**

[3 credit hours]

There are multiple political systems, ethnic identities and external interests among the countries in Sub-Saharan Africa. Applying a comparative lens, we will survey Africa's pre-colonial and colonial heritage; and economic, cultural, social and environmental characteristics that help define Africa. We will delve deeper into a few countries as case studies as well as examine the international and regional influences, thereby gaining a broad understanding of the political, social and economic implications surrounding Africa today.

**Term Offered:** Fall

Multicultural Non-US Diversity

**PSC 4680 Politics of Latin America**

[3 credit hours]

This course provides a survey of the Latin American region, its political transformation, and place in international politics. It covers an array of issues that have shaped and continue to shape the region: its history, its people, its culture, institutions and politics, and social and economic issues. Themes are approached both from a regional and country-level perspective.

Multicultural Non-US Diversity

**PSC 4720 International Organization**

[3 credit hours]

A study of the background, general concepts and problems of international organizations including the United Nations, regional organizations and non-governmental organizations. Issues covered include war, security, human rights, trade, international law, and global health.

**Term Offered:** Fall**PSC 4740 Politics of the Middle East**

[3 credit hours]

An advanced examination of international relations theory applied to the Middle East and a survey of modern Middle Eastern governments, cultures, and institutions with case studies on key issues facing the region.

Multicultural Non-US Diversity

**PSC 4750 Terrorism in International Relations**

[3 credit hours]

This course will give students a comparative historical, empirical, and theoretical overview of the causes, strategies, and goals of terrorist and counter-terrorism. The primary focus of the course is on the comparative and international nature of terrorism. Global and regional case studies will be used to better understand issues related to terrorism.

**PSC 4770 Human Rights**

[3 credit hours]

What are human rights? How are human rights created? Why do states protect or repress human rights? This class answers these questions by examining both the theoretical and empirical contributions to the study of human rights from the social sciences and law. In addition, human rights best (and worst) practices are considered.

**Term Offered:** Spring

**PSC 4810 Environmental Justice**

[3 credit hours]

Environmental Justice examines the unequal distribution of environmental benefits and burdens among vulnerable communities. This course will examine the challenges and solutions associated with environmental justice, both as a social movement and as a public policy initiative. We will discuss several different policy areas like health, pollution, hazardous waste siting, climate change, food, and natural disasters; and strategies applied by NGOs and interest groups, to understand the patterns of environmental inequality and injustice.

**PSC 4900 Politics of Asia**

[3 credit hours]

Asia is the largest of all continents and hosts more than half the world's population. This course will apply a comparative framework to explore the historical, cultural, and social forces shaping the politics of Asia. We will explore the similarities and variations across countries, regional influences of countries on one another, and the role of the international community, with special focus on U.S. - Asia relations (such as North-South Korea, Japan, India, China).

Multicultural Non-US Diversity

**PSC 4940 Applied Politics Internship**

[3 credit hours]

A study of electoral politics, public decision-making or policy implementation through internships with candidates, political parties, public officials or governmental or nonprofit agencies.

**Term Offered:** Spring, Summer, Fall

**PSC 4950 Capstone in Political Science**

[1 credit hour]

This course provides the opportunity to integrate and reflect on knowledge and experiences gained during completion of the political science major with an eye towards post-graduation endeavors such as graduate or professional study, or employment. Topics include how to construct a portfolio and write cover letters, resumes, and CVs.

**Term Offered:** Spring, Fall

**PSC 4960 Senior Honors Thesis**

[3 credit hours]

Supervised research and writing for honors students only.

**Term Offered:** Spring, Summer, Fall

**PSC 4980 Current Topics In Political Science**

[3 credit hours]

Timely examination of emerging issues within the various segments of the discipline of political science.

**Term Offered:** Spring, Fall

**PSC 4990 Independent Study In Political Science**

[1-3 credit hours]

Individual study and research in a selected political science topic under mentorship of a faculty member.

**Term Offered:** Spring, Summer, Fall

Departmental Honors prepares majors for post-graduate study, for law school, for advanced work in policy research, and for other professional pursuits. It emphasizes intellectual organization and concept formation through the processes of research and writing. Honors work fosters intellectual growth through independent study, involves students in research, prepares students for the intellectual rigor of graduate

study, and makes students more competitive for the best employment opportunities upon graduation.

These are the skills you will need in many professional positions— whether in governmental service, non-profit organizations, or the private sector. Departmental Honors offers the opportunity to specialize in one of the sub-disciplines of Political Science and to work closely with faculty in the Student's areas of interest.

If you aspire to do the kind of work required for Departmental Honors, we encourage you to contact the Honors Adviser (Dr. Heberle). Judge for yourself whether this individualized, intensive program is right for you.

Departmental Honors work is distinct from the University Honors Program, but works closely with it. You must have an overall UT GPA of at least 3.0 and a GPA of 3.3 or higher in the major and be in your third year of study to sign up for honors work. You must also complete PSC 4960 Senior Honors Thesis. PSC 3150 Research and Writing in Political Science is strongly recommended no later than Spring semester of your junior year.

## B.A. in Political Science

**Political Science (p. 133)**

**Political Science - Global Studies Concentration (p. 133)**

**Political Science - Legal Studies Concentration**

### Political Science

Code	Title	Hours
PSC 1200	American National Government	3
In addition, students must take three of the following:		9
PSC 2600	Principles of Comparative Politics	
PSC 2700	Principles Of International Relations	
PSC 2800	Principles Of Political Theory	
PSC 3410	Principles of Public Policy	
PSC 4950	Capstone in Political Science	1
Complete additional courses in the department to satisfy the 31-hour requirement. PSC 3150 Research and Writing in Political Science is highly recommended.		18
<b>Total Hours</b>		<b>31</b>

### Optional Global Studies Concentration

The foundation for this specialization is a B.A. in Political Science, within which the student must have included the following courses:

Code	Title	Hours
PSC 1200	American National Government	3
PSC 2600	Principles of Comparative Politics	3
PSC 2700	Principles Of International Relations	3

At least one course from the following:

Code	Title	Hours
PSC 2800	Principles Of Political Theory	3
PSC 3410	Principles of Public Policy	3



Departmental Electives drawn from the department's specialized international political focus:

Code	Title	Hours
PSC 1710	Current International Problems	3
PSC 2400	Topics in Political Science	3
PSC 2660	African Politics	3
PSC 2210	Women And Politics	3
PSC 2770	Great Decisions: America's Foreign Policy	1
PSC 2780	Political Science and Pop Culture	3
PSC 3150	Research and Writing in Political Science	3
PSC 3600	Fascism and Populism in Comparative Perspective	3
PSC 3730	American Foreign Policy	3
PSC 3790	Model United Nations/Model European Union	1
PSC 3850	Sports, Politics and Policy	3
PSC 4340	Environmental Policy	3
PSC 4520		3
PSC 4580		3
PSC 4640	The European Union	3
PSC 4660	Politics of Africa	3
PSC 4680	Politics of Latin America	3
PSC 4720	International Organization	3
PSC 4740	Politics of the Middle East	3
PSC 4750	Terrorism in International Relations	3
PSC 4770	Human Rights	3
PSC 4810	Environmental Justice	3
PSC 4850		3
PSC 4900	Politics of Asia	3
PSC 4940	Applied Politics Internship	3
PSC 4980	Current Topics In Political Science	3
PSC 4990	Independent Study In Political Science	1-3

The requirement of 18 related hours is to be met with the following:

Code	Title	Hours
GLST 2000	Principles Of Global Studies	3
GLST 4900	Senior Seminar In Global Studies	3

Plus, 12 hours of electives from this list:

Code	Title	Hours
ANTH 2800	Cultural Anthropology	3
ANTH 3850	Peoples Of World: An Evolutionary Approach	3
ENGL 3670	Literature of Diverse and Nonwhite Communities	3
ENGL 3660	Latinx Literature in the U.S.	3
GEPL 2040	World Regional Geography	3
ENGL 3770	World Literature And Cultures	3
ENGL 4550	Literature of the British Empire, Beginnings to 1850	3
ENGL 4560	Literature of the British Empire 1850 to the Present	3
GEPL 2050	World Cities	3
GEPL 4160	Patterns Of World Development	3
SOC 3640	Social Inequality	3

SOC 4340	Population And Society	3
SOC 4800		3

## Optional Legal Studies Concentration

This program is designed to allow students to focus their studies on law, legal processes, and legal institutions for careers in the legal profession, for leadership in public affairs, as well as for an interesting major. This solid liberal arts specialization provides excellent preparation for law school and a subsequent career as a lawyer or judge.

Code	Title	Hours
<b>Concentration in Legal Studies</b>		
The foundation for this specialization is a B.A. in Political Science, within which the student must have included the following two courses:		
PSC 1200	American National Government	3
PSC 3500	Principles Of Law	3
At least four courses from the department's specialized law and legal studies course offerings:		
PSC 3510	Constitutional Law I	
PSC 3520	Constitutional Law and Politics II	
PSC 4530		
PSC 4550	CONTEMPORARY ISSUES IN LAW AND POLITICS	
PSC 4580		
Three courses from the following four:		
PSC 2600	Principles of Comparative Politics	9
PSC 2700	Principles Of International Relations	
PSC 2800	Principles Of Political Theory	
PSC 3410	Principles of Public Policy	
Major Electives <sup>1</sup>		6
<b>Total Hours</b>		<b>33</b>

<sup>1</sup> While only two additional electives within political science are required for the Legal Studies specialization, students may elect to complete additional classes in the discipline.

### Political Science

#### Political Science - Global Studies Concentration (p. 133)

#### Political Science - Legal Studies Concentration

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

First Term	Hours	
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
PSC 1200	American National Government	3
	Elementary Foreign Language I	4
	HIST 1010-1200 Arts/Humanities Core (History)	3
<b>Hours</b>		<b>17</b>

**Second Term**

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
PSC 2700	Principles Of International Relations	3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>14</b>

**Third Term**

PSC 2600	Principles of Comparative Politics	3
PSC 2800	Principles Of Political Theory (WAC)	3
Intermediate Foreign Language I or approved culture course		3
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
Arts/Humanities Core (Fine Art)		3
<b>Hours</b>		<b>15</b>

**Fourth Term**

PSC 3410	Principles of Public Policy	3
Intermediate Foreign Language II or approved culture course		3
Natural Sciences Core		3
Social Sciences Core		3
Elective		3
<b>Hours</b>		<b>15</b>

**Fifth Term**

PSC Major Elective		6
Related or Minor course (WAC)		3
Related or Minor course		3
Elective		3
<b>Hours</b>		<b>15</b>

**Sixth Term**

PSC Major Elective		3
PSC Major Elective		3
Related or Minor course		3
Elective		3
Diversity of US		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

PSC Major Elective		6
Non-US Diversity		3
Elective		3
Related or Minor course		3
<b>Hours</b>		<b>15</b>

**Eighth Term**

PSC 4950	Capstone in Political Science	1
Elective		10
Related or Minor course		3
<b>Hours</b>		<b>14</b>

**Total Hours 120**

**Optional Global Studies Concentration**

<b>First Term</b>		<b>Hours</b>
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
PSC 1200	American National Government	3
Elementary Foreign Language I		4
HIST 1010-1200 Arts/Humanities Core (History)		3
<b>Hours</b>		<b>17</b>

**Second Term**

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
Natural Science Core		3
Natural Science Core Lab		1
PSC 2700	Principles Of International Relations	3
<b>Hours</b>		<b>14</b>

**Third Term**

PSC 2600	Principles of Comparative Politics	3
GLST 2000	Principles Of Global Studies	3
Intermediate Foreign Language I or approved culture course		3
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
Arts/Humanities Core (Fine Art)		3
<b>Hours</b>		<b>15</b>

**Fourth Term**

PSC 2800- Principles of Political Theory OR PSC 3410- Principles of Public Policy		3
Intermediate Foreign Language II or approved culture course		3
Natural Science Core		3
Social Science Core		3
Elective		3
<b>Hours</b>		<b>15</b>

**Fifth Term**

PSC International Elective		3
PSC International Elective		3
Related Field Course (WAC)		3
Related Field Course		3
Elective		3
<b>Hours</b>		<b>15</b>

**Sixth Term**

PSC International Elective		3
PSC International Elective		3
Related Field Course		3
Related Field Course (WAC)		3
Diversity US Course		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

PSC International Elective		3
PSC International Elective		3



Related Field Course	3
Elective	3
Elective	3
<b>Hours</b>	<b>15</b>
<b>Eighth Term</b>	
GLST 4900 Senior Seminar In Global Studies	3
PSC 4950 Capstone in Political Science	1
Related Field Course	3
Electives	7
<b>Hours</b>	<b>14</b>
<b>Total Hours</b>	<b>120</b>

### Optional Legal Studies Concentration

<b>First Term</b>		<b>Hours</b>
AR 1000 First Year Orientation	1	
ENGL 1110 College Composition I	3	
MATH 1180 Reasoning With Mathematics	3	
PSC 1200 American National Government	3	
Elementary Foreign Language I	4	
HIST 1010-1200 Arts/Humanities Core (History)	3	
<b>Hours</b>	<b>17</b>	

<b>Second Term</b>		
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3	
Elementary Foreign Language II	4	
PSC 2700 Principles Of International Relations	3	
Natural Sciences Core	3	
Natural Sciences Core (Lab)	1	
<b>Hours</b>	<b>14</b>	

<b>Third Term</b>		
PSC 2600 Principles of Comparative Politics	3	
PSC 2800 Principles Of Political Theory (WAC)	3	
Intermediate Foreign Language I or approved culture course	3	
ENGL 2710-2800 Arts/Humanities Core (English Lit)	3	
Arts/Humanities Core (Fine Art)	3	
<b>Hours</b>	<b>15</b>	

<b>Fourth Term</b>		
PSC 3410 Principles of Public Policy	3	
Intermediate Foreign Language II or approved culture course	3	
Natural Sciences Core	3	
Social Sciences Core	3	
Elective	3	
<b>Hours</b>	<b>15</b>	

<b>Fifth Term</b>		
PSC Major Elective	6	
Related or Minor course (WAC)	3	
Related or Minor course	3	

Elective	3
<b>Hours</b>	<b>15</b>

<b>Sixth Term</b>	
PSC Major Elective	3
PSC Major Elective	3
Related or Minor course	3
Elective	3
Diversity of US	3
<b>Hours</b>	<b>15</b>

<b>Seventh Term</b>	
PSC Major Elective	6
Non-US Diversity	3
Elective	3
Related or Minor course	3
<b>Hours</b>	<b>15</b>

<b>Eighth Term</b>	
PSC 4950 Capstone in Political Science	1
Elective	10
Related or Minor course	3
<b>Hours</b>	<b>14</b>
<b>Total Hours</b>	<b>120</b>

- PLO 1: recognize political phenomena and political lacuna worthy of investigation using the methods of political science
- PLO 2: describe and critique the essential concepts in four of five subfields of political science: American politics, comparative politics, international relations, political theory, and public administration
- PLO 3: develop descriptive inferences about political phenomena by applying the foundational concepts of political science and known facts
- PLO 4: interpret and evaluate the significance and dynamics of political events and governmental processes that affect citizens lives
- PLO 5: analyze political, administrative, and policy issues using empirical methods including formulating hypotheses and organizing information to test those hypotheses
- PLO 6: normatively evaluate political, administrative, and policy issues and justify students normative conclusions

### Minor in Political Science

Students seeking a minor in political science must complete at least 18 hours of course work at the 2000 level or above in the discipline, chosen in consultation with a departmental adviser. It is recommended that minors include in their undergraduate program the introductory course in American Government (PSC 1200) and three of the four gateway subfields. At least 9 of the 18-credit hour minimum must be at the 3000-4000 levels.

- PLO 1. To increase knowledge of the political science discipline; its principal theoretical frameworks and applications, conceptual vocabulary, and methods of inquiry; its major subfields of study; and its interrelationships with the other social science fields.



## Minor in Public Administration

The minor in public administration is comprised of 18 hours of course work of which at least 15 hours shall be taken at the 3000 or 4000 level. Political science majors wishing to minor in public administration are advised to consider the Early Admission program for the MPA. Political science students minoring in public administration may not utilize 3000 or 4000 level public administration identified courses to fulfill their political science major requirements.

Code	Title	Hours
<b>Public Administration Courses</b>		<b>18</b>
PSC 1200	American National Government	
PSC 2300	Principles Of State And Local Government	
PSC 3410	Principles of Public Policy	
PSC 4220	Advocacy Groups in US Politics	
PSC 4300	Principles of Public Administration	
PSC 4320	Urban Policy & Administration	
PSC 4360	Ethics In Public Policy And Administration	
PSC 4380	Fundraising (Fundraising)	
PSC 4410	Public and Nonprofit Management	
PSC 4430	Human Resources Management in Public and Nonprofit Organizations	
PSC 4440	Budgeting And Financial Administration	
PSC 4480	Introduction to Nonprofits (Introduction to Non-Profits)	
PSC 4560	Law And Public Administration	
ECON 4810	Econometrics Models And Methods I	
ECON 4820	Econometrics Models And Methods II	
GEPL 4110	Geographic Information Systems	
GEPL 4180	Geographic Information Systems Applications	
GEPL 4210	Land Use Planning	
GEPL 4530	Principles Of Urban Planning	
GEPL 4570	Land Development And Planning	
GEPL 4750	Transportation Geography	
THR 4250	Administration and Management of the Arts (Administration and Management of the Arts)	
THR 4260	Promoting the Visual and Performing Arts (Promoting the Visual and Performing Arts)	
<b>Total Hours</b>		<b>18</b>

Other related courses approved by the Chair of Political Science & Public Administration

- PLO 1. lead and manage in public governance;
- PLO 2. participate in and contribute to the policy process;
- PLO 3. analyze, synthesize, think critically, solve problems and make decisions;
- PLO 4. articulate and apply a public service perspective;
- PLO 5. communicate and interact productively with a diverse and changing workforce and citizenry.

## Department of Psychology

J.D. Jasper, Ph.D, Chair  
 Peter Mezo, PhD., Associate Chair and Undergraduate Coordinator  
 Alexandria Harris, Undergraduate Advising

Ms. Harris can answer basic questions about degree requirements, help you tailor your course selections to meet your goals, and fill out graduation progress evaluations. She is available on a walk-in basis. Students may also make an appointment by calling her office as 419.530.2235, or emailing her at Alexandria.harris@utoledo.edu.

### Advanced Placement Program

Refer to the University of Toledo's Registrar page at [https://www.utoledo.edu/offices/registrar/student\\_records/advan\\_credits.html](https://www.utoledo.edu/offices/registrar/student_records/advan_credits.html) for specific information on minimum scores and credits awarded for Advanced Placement examinations administered by the College Board Advanced Placement Program.

### Degrees Offered

- B.A. in Psychology (p. 138)
- Minor in Psychology (p. 140)

### Requirements for Admission

Psychology majors are encouraged to earn the graduation citation "Honors in Psychology" through the Department of Psychology honors program. A student can be admitted at any time but no later than the end of the first semester of their junior year. The following criteria must be met for admission to the program:

1. An overall GPA of 3.8 or higher -or- Good standing in the College Honors program
2. A grade of B or higher in PSY 2100
3. A GPA in Psychology courses of 3.4 or higher
4. Recommendation by two Department faculty members

Check with your advisor about your suitability for honors. If interested, contact the Department Honors Advisor for application materials.

### Requirements for Graduation with Honors in Psychology

Once admitted, Honors students must meet all Requirements for the Undergraduate Major with the addition of:

Code	Title	Hours
PSY 3800	Honors Proposal (Review a topic under the guidance of a faculty member and design and write a proposal for an empirical research project)	3
PSY 3910	Honors Research (Carry out the proposed research project)	3



PSY 4960	Honors Thesis (Analyze the data from the research project, write the results for a research publication in APA style, and present it formally to department faculty)	3	Select 18 hours of related courses <sup>5</sup>	18
<b>Total Hours</b>			<b>Total Hours</b>	<b>55-61</b>

The final GPA in all Psychology courses must be 3.4 or higher.

## B.A. in Psychology

The major in Psychology requires a minimum of 34 semester hours of Psychology courses, with at least 22 of these hours taken at the University of Toledo, plus 18 hours of related courses. Courses for the major in Psychology cannot be taken as P/NC except for PSY 4100.

### The B.A. Curriculum

The B.A. degree in psychology is designed to provide a liberal arts education and to prepare students for a wide variety of careers, graduate training in a specialized area of psychology (e.g., Experimental or Clinical psychology graduate programs), or graduate work in related disciplines. Students will be exposed to all of the major fields of psychology. Related courses come from a list pre-approved by faculty in the department and available on the Psychology Department website. These courses are taught by other departments, but are relevant to various areas of psychology. Fundamentals of Biology or Biodiversity (BIOL 2150 or EEES 2150) with lab (BIOL 2160 or EEES 2160) is on the list and is the only related course required of all majors. Students who wish to do so can use these BIOL or EEES hours toward their natural science requirement. Students are free to choose any other courses from the related list, but should do so in consultation with their advisers.

The core psychology curriculum is as follows:

Code	Title	Hours
<b>Basic Psychology Courses</b>		
Select 5 of the following:		15
PSY 2200	Abnormal Psychology	
PSY 2400	Cognitive Psychology	
PSY 2510	Lifespan Developmental Psychology	
PSY 2600	Psychobiology	
PSY 2610	Learning And Motivation	
PSY 2700	Social Psychology	
<b>Methodological Courses</b>		
PSY 2100	Statistical Methods <sup>1,2</sup>	3
PSY 3110	Research Methods In Psychology	4
<b>Advanced Research Courses</b>		
Strongly advised - select one of the following: <sup>3</sup>		3
PSY 4100	Research Practicum	
PSY 4700	Research In Social Psychology	
PSY 4910	Independent Research	
PSY 4960	Honors Thesis	
<b>Elective Psychology Courses</b>		
Select 12-18 hours of electives <sup>4</sup>		12-18
<b>Related Courses</b>		

<sup>1</sup> Must earn a C- or higher in MATH 1320 or higher before taking PSY 2100.

<sup>2</sup> Must earn a grade of C- or higher before taking PSY 3110.

<sup>3</sup> An Advanced Research Course is not required of all majors but students planning to pursue graduate work in psychology are strongly advised to take an advanced research course from the list.

<sup>4</sup> This category includes all Psychology courses at the 3000- or 4000-level that are not taken to meet requirements A and B. At least 12 hours of electives must be taken at a 3000-level or higher.

No more than a total of 8 hours of PSY 3940 Externship In Psychology, PSY 4100 Research Practicum, PSY 4990 Independent Study, PSY 4910 Independent Research, and/or PSY 4960 Honors Thesis combined can count toward the Psychology major.

<sup>5</sup> The 18 hours of related courses are taken outside the Department of Psychology, and must be on the related list and/or approved by the student's Department advisor.

At least 9 hours must be courses numbered 3000 or higher.

A minor in another department or a second major may be used to complete the remaining Related Courses requirement, with the advisor's approval.

### **COMBINED BACHELOR'S TO MASTER'S - PSYCHOLOGY, BA TO SCHOOL PSYCHOLOGY, MA PIPELINE PROGRAM**

Undergraduate students accepted to the Combined bachelor's to master's - Psychology, BA to School Psychology, MA Pipeline Program option will be admitted to the HH-CSPS-MA: School Psychology, MA program and be allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. The graduate credits cannot come from any psychology major requirements or electives but rather from the related field electives (i.e., non-psychology credits). Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) SPSY 5030, SPSY 6300, SPSY 5040, SPSY 6260, COUN 5160, HSHS 6000, and COUN 5140 may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

### COMBINED BACHELOR'S TO MASTER'S - PSYCHOLOGY, BA to COUNSELOR EDUCATION, MA (concentrations in school counseling and clinical mental health counseling) PIPELINE PROGRAM

Undergraduate students accepted to the **Combined bachelor's to master's - Psychology, BA to Counselor Education, MA Pipeline Program** option will be admitted to the HH-CED-MA: Counselor Education, MA program and be allowed to complete up to two graduate level classes (eight credit hours) during their final academic year of undergraduate studies. **The graduate credits cannot come from any psychology major requirements or electives but rather from the related field electives (i.e., non-psychology credits).** Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to eight hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of eight hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) COUN 5140, and COUN 5180 may be included in the approved eight semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

First Term		Hours
AR 1000	First Year Orientation	1
PSY 1010	Principles Of Psychology	3
ENGL 1110	College Composition I	3
MATH 1320	College Algebra	3
Elementary Foreign Language I		4
HIST 1010 or HIST 1200	Europe To 1600 or	3
<b>Hours</b>		<b>17</b>
Second Term		Hours
PSY 2200-PSY 2700	Major Elective	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
Arts/Humanities Core (Fine Art)		3
Elective		3
<b>Hours</b>		<b>16</b>

Third Term		Hours
PSY 2200-PSY 2700	Major Elective	3
PSY 2200-PSY 2700	Major Elective	3
Intermediate Foreign Language I		3
UT Core Natural Science		3
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
<b>Hours</b>		<b>15</b>

Fourth Term		Hours
PSY 2100	Statistical Methods	3
Intermediate Foreign Language II		3
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation ((Natural Sciences Core))	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation (Natural Sciences Core Lab)	1
Related or Minor course		3
Arts/Humanities Core		3
<b>Hours</b>		<b>17</b>

Fifth Term		Hours
PSY 2200-PSY 2700	Major Elective	3
PSY 2200-PSY 2700	Major Elective	3
PSY 3110	Research Methods In Psychology (WAC)	4
Non-US Diversity		3
Related or Minor course		3
<b>Hours</b>		<b>16</b>

Sixth Term		Hours
PSY 3000-PSY 4999	Major Elective	3
PSY 3000-PSYI 4999	Major Elective	3
Related or Minor course		6
Diversity of US		3
<b>Hours</b>		<b>15</b>

Seventh Term		Hours
PSY 3000-PSY 4999	Major Elective	3
Related or Minor course		5
Elective		4
<b>Hours</b>		<b>12</b>

Eighth Term		Hours
PSY 3000-PSY 4999	Major Elective	3
Related or Minor course		5



Elective	4
<b>Hours</b>	<b>12</b>
<b>Total Hours</b>	<b>120</b>

- PLO 1: Knowledge base in Psychology: apply fundamental knowledge and comprehension of the major concepts, theoretical perspectives, historical trends, and empirical findings to discuss how psychological principles apply to behavioral problems.
- PLO 2: Scientific Inquiry and Critical Thinking: Use scientific reasoning to interpret psychological phenomena; interpret, design, and conduct basic psychological research.
- PLO 3: Ethical and Social Responsibility in a Diverse World: Apply ethical standards to evaluate psychological science and practice; build and enhance interpersonal relationships.
- PLO 4: Communication: Demonstrate effective oral presentation and writing to interact effectively with others.
- PLO 5: Professional Development: Apply psychological content and skills to career goals to develop meaningful professional direction for life after graduation.

## Minor in Psychology

Students electing to minor in psychology at the University of Toledo must complete a minimum of 21 semester hours of course work: 12 hours of basic courses in Psychology and an additional 9 hours of advanced Psychology courses. Each program of study must be approved by a department adviser. A minimum GPA of 2.0 must be achieved in courses within the minor. Courses in the minor may NOT be taken as P/NC. The curriculum is as follows:

Code	Title	Hours
<b>Basic Psychology Courses</b>		
Select 4 of the following: <sup>1</sup>		12
PSY 2200	Abnormal Psychology	
PSY 2400	Cognitive Psychology	
PSY 2510	Lifespan Developmental Psychology	
PSY 2600	Psychobiology	
PSY 2700	Social Psychology	
<b>Advanced Courses</b>		
Select 9 hours of Psychology courses numbered 3000-4990 <sup>2</sup>		9
<b>Total Hours</b>		<b>21</b>

<sup>1</sup> With the approval of a Department advisor.

<sup>2</sup> With the approval of a Department advisor, the student must select 9 hours of Psychology courses 3000-4990. It should be noted that no more than a total of 4 hours of PSY 4100 Research Practicum, PSY 4990 Independent Study, and/or PSY 4910 Independent Research may be included.

## Department of Sociology and Anthropology

Dwight Haase, Chair

**Sociology is the study of people in the context of the groups in which they live.**

- This social science equips a student to better understand human relationships within families, organizations and societies.
- In these times of pandemic, economic upheaval, polemic politics and rising inequality, a degree in sociology can promote unification, social justice and a deeper understanding of how people relate to each other.
- A degree in this discipline can prepare a student for a career in different fields including public service, non-profit work and medical-related fields.

**Anthropology is the study of people around the world, over time and in different settings.** It looks at the nature of human societies from the beginning of our existence to our present day and toward our future.

This discipline focuses on the past and present record of human societies and investigates human existence from several subfields, including:

- Archaeology
- Biological (or Physical) Anthropology
- Linguistic Anthropology
- Cultural Anthropology
- Medical Anthropology
- Cultural Ecology

An Anthropology degree prepares a student for the evolving international job market and other cultural shifts in today's world. Additionally, students are exposed to investigative learning to look for solutions to issues facing humankind including environmental sustainability and public health.

## Degrees Offered

- B.A. in Anthropology (p. 145)
- B.A. in Sociology (p. 147)
- Minor in Anthropology (p. 148)
- Minor in Sociology (p. 148)

### ANTH 1020 Introduction To Anthropology

[3 credit hours]

A survey of the varied aspects of anthropology, including cultural anthropology, prehistory, physical anthropology and linguistics. (not for major credit)

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

### ANTH 2000 Proseminar In Anthropology I

[1 credit hour]

Students are introduced to the academic and professional nature of Anthropology. Topics covered include professional socialization, honor theses, portfolio construction, preparation for graduate studies, and career development.

**Term Offered:** Spring, Fall

**ANTH 2020 Introduction To Archaeology**

[3 credit hours]

An introduction to the history, methods and techniques of archaeology and how the discipline of archaeology is related to anthropology, ethnohistory, history and geology.

**Term Offered:** Spring, Fall

Core Social Sciences, OT36 Social Science

**ANTH 2100 Human Society Through Film**

[3 credit hours]

An introduction through the use of ethnographic film to various aspects of non-western culture and the development of the use of film in anthropology.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural Non-US Diversity

**ANTH 2700 Human Evolution**

[3 credit hours]

A survey of the human species in time, place and culture and the investigation of the factors underlying human biological variation.

**Term Offered:** Summer, Fall

Core Social Sciences

**ANTH 2750 World Archaeology**

[3 credit hours]

A survey of the processes of cultural development from the lower Pleistocene to development of writing.

**Term Offered:** Spring, Summer

Core Social Sciences, OT36 Social Science

**ANTH 2800 Cultural Anthropology**

[3 credit hours]

Introduction to culture patterns and processes and their relationship to human society and language.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural Non-US Diversity, OT36 Social Science

**ANTH 2900 African American Culture**

[3 credit hours]

A survey of the socio-historical and cultural factors of African Americans in the U.S.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity, OT36 Social Science

**ANTH 2980 Topics in Anthropology**

[3 credit hours]

Examination of Special Topics in Anthropology. May be repeated on different topics.

**Term Offered:** Spring, Summer, Fall**ANTH 3000 Environmental Anthropology**

[3 credit hours]

A study of the functional interrelationships of humans and their biophysical environment in cross cultural perspective, with special emphasis on non-western cultures.

**Term Offered:** Spring, Fall**ANTH 3020 Ohio Prehistory**

[3 credit hours]

A study of the prehistoric peoples in Ohio from the end of the Ice Age to the arrival of the Europeans.

**ANTH 3330 Food, Health, Society**

[3 credit hours]

This course deals with multi-cultural dietary patterns through time and space, as well as cross-cultural influences on health and disease.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**ANTH 3800 Ecotourism: Studies of the Africana World**

[3 credit hours]

Introduce students to the field of ecotourism studies and specific challenges of community development and sustainability. The course covers ecotourism in the Africana world of Africa, the Caribbean, and Latin America.

**Term Offered:** Spring, Fall**ANTH 3850 Peoples Of World: An Evolutionary Approach**

[3 credit hours]

An introduction to the socioeconomic activities in societies of varying sociocultural complexity.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**ANTH 3900 North American Archaeology**

[3 credit hours]

This course focuses on the history of North America as known from the archaeological record; from the peopling of North America through early historical contexts.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**ANTH 3920 Indians Of North America**

[3 credit hours]

A survey of North America Indians from prehistoric times to the present.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**ANTH 3940 Peoples Of Sub-Saharan Africa**

[3 credit hours]

The cultures and societies of the Sub-Saharan peoples of Africa.

**Prerequisites:** ANTH 2800 with a minimum grade of D-**Term Offered:** Spring

Multicultural Non-US Diversity

**ANTH 4000 Proseminar In Anthropology II**

[2 credit hours]

Discussion among faculty and students devoted to the study of Anthropology with a special focus on the development of a professional portfolio for graduate work or career.

**Prerequisites:** ANTH 2000 with a minimum grade of D-**Term Offered:** Spring, Fall**ANTH 4200 History and Theory in Anthropology-WAC**

[3 credit hours]

This course acquaints students with various schools of anthropological theory, stressing the influence of traditional approaches on contemporary thought and the impact of historical context on the development of theory.

**Prerequisites:** ANTH 2800 with a minimum grade of D-**Term Offered:** Spring, Fall

**ANTH 4300 Cultural Resource Management - WAC**

[3 credit hours]

Course explores the history, theory, and contemporary issues behind the historic preservation movement and emergence of Cultural Resource Management in the United States; topics engaged include legislation, federal and state programs, the national register, regional planning, and research orientations.

**Term Offered:** Spring, Summer, Fall**ANTH 4440 People, Population, and Society: Demographic Analysis**

[3 credit hours]

Methods of population analysis, including examination and evaluation of data sources.

**Term Offered:** Spring, Summer**ANTH 4450 Exploring the City**

[3 credit hours]

This course takes an interdisciplinary approach to life in cities around the world, with emphasis on the ethnographic exploration of how power, cultural difference, and social inequality in cities are produced and experienced.

**Term Offered:** Spring, Fall**ANTH 4510 Field Methods in Archaeology**

[6 credit hours]

Methods of excavation and recovery of archaeological data. Field school conducted during excavation of a prehistoric site in the Toledo area.

**ANTH 4520 Laboratory Methods In Archaeology**

[3 credit hours]

Instruction in the methods and techniques employed by the archaeologist to analyze cultural material recovered in the field.

**Term Offered:** Fall**ANTH 4530 Qualitative Approaches in Social Science Research**

[3 credit hours]

This course examines qualitative methods used in social science research. Focusing on ethnographic and qualitative methods, the course provides students the skills necessary to design and conduct qualitative research studies.

**ANTH 4760 Medical Anthropology**

[3 credit hours]

An examination of the biocultural nature of health and illness, with special emphasis on changing patterns of disease in non-western societies.

**Term Offered:** Spring, Fall  
Multicultural Non-US Diversity**ANTH 4790 Human Osteology**

[3 credit hours]

This course focuses on human skeletal anatomy and bone morphology using an evolutionary and biocultural perspective. Students are introduced to skeletal elements, their major landmarks, and methods for analyzing materials and assessing variation.

**Prerequisites:** ANTH 2700 with a minimum grade of D-**Term Offered:** Spring**ANTH 4820 Anthropology Of Religion**

[3 credit hours]

A cross-cultural approach to the description and analyses of magical and religious beliefs and practices in Asia, Africa, Latin America and Indigenous North America.

**Prerequisites:** ANTH 2800 with a minimum grade of D-**Term Offered:** Spring, Fall  
Multicultural Non-US Diversity**ANTH 4860 The Irish-American Experience**

[3 credit hours]

A survey of the sociohistorical and cultural factors related to the immigration and adaptation of the Irish in America.

**Term Offered:** Spring  
Multicultural US Diversity**ANTH 4910 Independent Research In Anthropology**

[1-3 credit hours]

Supervised independent research in anthropology.

**Term Offered:** Spring, Summer, Fall**ANTH 4920 Directed Readings In Anthropology**

[1-3 credit hours]

Designed for those wishing to continue course work in greater depth or seeking contact with unlisted subject areas. Written proposal and consent required.

**Term Offered:** Spring, Summer, Fall**ANTH 4940 Internship in Anthropology**

[1-6 credit hours]

This course provides students supervised field placement related to the field of anthropology. Qualified students will work in approved organizations, such as museums, parks, research libraries, government agencies, community organizations, businesses, schools, etc.

**Term Offered:** Spring, Summer, Fall**ANTH 4960 Honors Thesis**

[3-6 credit hours]

The student completes a thesis under the direction and guidance of their faculty adviser.

**Term Offered:** Spring, Summer, Fall**ANTH 4980 Problems In Anthropology**

[3 credit hours]

Courses on varied anthropological specialties. May be repeated in different specialty areas such as religion, ethnohistory, ethnic conflict and area courses.

**Term Offered:** Spring, Summer, Fall**SOC 1010 Introduction To Sociology**

[3 credit hours]

(not for major credit) Sociological topics regarding social behavior, institutional dynamics and social change are examined, and the principles and basic concepts used by sociologists are taught.

**Term Offered:** Spring, Summer, Fall  
Core Social Sciences, OT36 Social Science

**SOC 1020 Social Problems**

[3 credit hours]

(Not for major credit) Introduces students to the sociological perspective through the analysis of various social problems including inequality, population, environment, workplace and deviant behavior.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

**SOC 2000 Proseminar In Sociology I**

[1 credit hour]

Students are introduced to the academic and professional nature of Sociology. Topics covered include professional socialization, honor theses, portfolio construction, preparation for graduate studies, and career development.

**Term Offered:** Spring, Fall**SOC 2150 The Family and Society**

[3 credit hours]

Examines evolving family structures, focusing on the impact that cultural, political, and social factors have on private personal relationships and the public social institution of the family.

**Term Offered:** Spring, Fall**SOC 2410 Communities - Writing Across the Curriculum**

[3 credit hours]

Examination of various forms and definitions of community with special focus on what the conceptualization of community means for how community issues are identified and addressed.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences

**SOC 2500 Women's Roles: A Global Perspective**

[3 credit hours]

The course focuses on the current and evolving social, economic and political status of women in the United States and selected non-Western societies. For both men and women students.

Core Social Sciences, Multicultural Non-US Diversity, OT36 Social Science

**SOC 2640 Race, Class, And Gender**

[3 credit hours]

Introduction to the study of race, class and gender as factors in American stratification.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity, OT36 Social Science

**SOC 2660 Racial and Ethnic Minorities in the United States**

[3 credit hours]

This course is a sociological exploration of American racial and ethnic groups. Emphasis is placed on the social construction of race and ethnicity and patterns of intergroup interactions. The historical experiences of selected groups are examined with emphasis on structural inequalities.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity

**SOC 2750 Sociology Of Sport**

[3 credit hours]

This course examines sport as a microcosm of our society, exploring many sociological issues (socialization, social institutions, and inequality) within the framework of sport that exist in society as whole.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences

**SOC 2900 African American Culture**

[3 credit hours]

A survey of the sociohistorical and cultural factors related to the African American experience in the United States.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity, OT36 Social Science

**SOC 2980 Special Topics**

[3 credit hours]

Examination of a special topical area in sociology. May be repeated on different topics.

**SOC 3270 Social Research Methods**

[3 credit hours]

Introduction to procedures used in the various phases of sociological research.

**Term Offered:** Spring, Fall**SOC 3290 Social Statistics**

[3 credit hours]

Study of major statistical procedures and techniques in sociology.

**Prerequisites:** MATH 1180 with a minimum grade of D- or MATH 1200 with a minimum grade of D- or MATH 1210 with a minimum grade of D- or MATH 1320 with a minimum grade of D- or MATH 1330 with a minimum grade of D- or MATH 1340 with a minimum grade of D- or MATH 1730 with a minimum grade of D- or MATH 1750 with a minimum grade of D- or MATH 1830 with a minimum grade of D- or MATH 1850 with a minimum grade of D- or MATH 2450 with a minimum grade of D- or MATH 2600 with a minimum grade of D- or MATH 2640 with a minimum grade of D-

**Term Offered:** Spring, Fall**SOC 3640 Social Inequality**

[3 credit hours]

This course examines the bases, varieties and consequences of systems of inequality, including the development of and changes in inequality patterns in the US and other societies.

**Term Offered:** Spring, Summer, Fall**SOC 3800 Social Psychology**

[3 credit hours]

An introduction to theory and research concerning social influences on the experience and behavior of individuals. Includes interaction patterns, interpersonal and intergroup relations.

**Term Offered:** Spring, Summer, Fall**SOC 3890 Ecotourism: Studies of the Africana World**

[3 credit hours]

Introduce students to the field of ecotourism studies and specific challenges of community development and sustainability. The course covers ecotourism in the Africana world of Africa, the Caribbean, and Latin America.

**Term Offered:** Spring, Fall**SOC 4000 Proseminar In Sociology II**

[2 credit hours]

Discussion among faculty and students devoted to the study of Sociology with a special focus on the development of a professional portfolio for graduate work or career.

**Prerequisites:** SOC 2000 with a minimum grade of D-**Term Offered:** Spring, Fall

**SOC 4040 Classical Theory**

[3 credit hours]

Foundations of social theory including works by Marx, Weber, Durkheim and Simmel as well as other classical theorists.

**Term Offered:** Spring, Fall**SOC 4100 Community Organizing and Development**

[3 credit hours]

This course focuses on attempt of communities to regain power and wealth lost through urban disinvestment occurring since World War II. The course will involve numerous practical workshops to learn how to do community organizing and community development and will include information on Toledo case studies.

**Term Offered:** Spring, Fall**SOC 4160 Health And Gender**

[3 credit hours]

An examination of sex and gender as a predisposing factor of health status, health behavior, health care delivery, and the structure and posture of health care professionals.

**Term Offered:** Spring, Summer, Fall**SOC 4180 Medical Sociology**

[3 credit hours]

An analysis of the sociocultural factors in health and illness, and in medical and paramedical services, and in the field of health practice as a social institution.

**Term Offered:** Spring, Fall**SOC 4340 Population And Society**

[3 credit hours]

Examination of the interaction among variables of population (fertility, mortality and migration) and other aspects of societal organization.

**Term Offered:** Fall**SOC 4440 People, Population, and Society: Demographic Analysis**

[3 credit hours]

Methods of population analysis, including examination and evaluation of data sources.

**Term Offered:** Spring, Summer**SOC 4450 Exploring the City**

[3 credit hours]

Examination of how cities are organized with special attention to economic, political, racial/ethnic, and sex/gender dynamics.

**Term Offered:** Spring, Fall**SOC 4530 Qualitative Approaches in Social Science Research**

[3 credit hours]

This course examines qualitative methods used in social science research. Focusing on ethnographic and qualitative methods, the course provides students the skills necessary to design and conduct qualitative research studies.

**SOC 4560 Fieldwork in the Community**

[6 credit hours]

This course involves the student in meaningful social research at the community level. The student is introduced to methods in fieldwork in the social sciences.

**Term Offered:** Spring, Summer, Fall**SOC 4610 Sociology Of Organizations**

[3 credit hours]

Study of the structures, functions, and processes of various types of organizations. Topics include bureaucracy, organizational leadership and management, and organizational culture.

**Term Offered:** Spring**SOC 4710 Criminology**

[3 credit hours]

Crime and criminal behavior: nature, types and extent of crime, societal reactions; problems in research and theory, prevention, control and treatment.

**Term Offered:** Summer**SOC 4720 Deviant Behavior**

[3 credit hours]

Study and analysis of the nature, meaning and process of deviant behavior in terms of social norms, control and societal reaction.

**Term Offered:** Summer, Fall**SOC 4760 Juvenile Delinquency**

[3 credit hours]

Delinquency and delinquent behavior, including definitions, extent, process, types and causes; methods of prevention, protective control and treatment; institutional and non-institutional facilities and services.

**SOC 4810 Gender In Cross-Cultural Perspective**

[3 credit hours]

Analysis of gender stratification and its impact on culture in various nations and across ethnic groups in the United States.

Multicultural Non-US Diversity

**SOC 4830 Social Movements**

[3 credit hours]

This course analyzes how and why social protest movements form, and how and why they succeed or fail. Attention will be given to post-World War II social movements, including current examples.

**Term Offered:** Spring, Fall**SOC 4840 Globalization**

[3 credit hours]

This course takes an interdisciplinary approach to studying globalization – increased integration and interdependence between nations. We will start by looking at the historical context of globalization, showing this process is not necessarily something new. From there we will focus on four dimensions of globalization: economic, political, demographic, and cultural. We also will stress the interconnectedness of these dimensions. We conclude by looking at reactions and resistance to globalization, including terrorism and nationalism.

**Term Offered:** Spring**SOC 4910 Directed Research In Sociology**

[1-3 credit hours]

Student-selected research topic under the supervision of a sociology faculty member. Permission to enroll is contingent on the instructor's acceptance of the student's research proposal.

**Prerequisites:** SOC 3270 with a minimum grade of D-



**SOC 4920 Directed Readings In Sociology**

[1-3 credit hours]

Written proposal required. May be repeated for additional credit. For majors wishing to continue course work in greater depth or seeking contact with unlisted subject areas.

**Term Offered:** Spring, Fall

**SOC 4940 Internship in Sociology**

[3 credit hours]

**SOC 4960 Honors Thesis**

[3-6 credit hours]

**SOC 4980 Special Topics In Sociology**

[3 credit hours]

Sociological examination of a developing and/or important social issue or sociological topic. May be repeated for different specialized topics.

**Term Offered:** Spring, Summer, Fall

**SOC 4990 Independent Study-Sociology**

[1-3 credit hours]

## Honors in Anthropology

Qualified juniors and seniors may apply to work for honors in anthropology. The following are requirements for entrance into the Honors Program in anthropology.

1. Admission
  - a. 3.3 minimum GPA in anthropology courses
  - b. 3.0 minimum cumulative GPA
  - c. 12 hours completed work in anthropology
  - d. Qualification as an anthropology major
2. Requirements
  - a. A student must complete 9 hours of independent work in anthropology. During the final quarter before graduation, the student must pass a comprehensive examination or submit a completed honors thesis. Students should discuss their special interests with faculty members or with the honors adviser, who will help identify an appropriate faculty member to guide the honors work.

## Honors in Sociology

Qualified juniors and seniors may apply to work for honors in sociology. The following are requirements for entrance into the Honors Program in sociology:

1. Admission
  - a. 3.3 minimum GPA in sociology courses
  - b. Minimum cumulative GPA of 3.0
  - c. Completion of 12 hours of sociology courses; and
  - d. Qualification as a sociology major
2. Requirements
  - a. A student must complete nine hours of independent work in sociology. During the final semester before graduation, the student must complete an honors paper. The honors topic and paper are to be developed in close conjunction with a faculty adviser. Students should discuss their special interests with

faculty members or with the honors adviser, who will help identify an appropriate faculty member to guide the honors work.

## B.A. in Anthropology

A major in anthropology consists of a minimum of 33 hours of coursework: 21 hours of core courses in anthropology and an additional 12 hours of elective courses at the 2100 level or above in anthropology (9.0 hours of electives must be at the 3000 and 4000 levels in anthropology). Also required are 18 hours of course work in a related field(s), at least 9.0 credits of which are completed at the 3000 & 4000 levels.

The undergraduate major of 33 hours must include the following:

Code	Title	Hours
<b>Core Courses</b>		
ANTH 2020	Introduction To Archaeology	3
ANTH 2700	Human Evolution	3
ANTH 2800	Cultural Anthropology	3
ANTH 4440	People, Population, and Society: Demographic Analysis	3
	or ANTH 4510 Field Methods in Archaeology	
	or ANTH 4520 Laboratory Methods In Archaeology	
	or ANTH 4530 Qualitative Approaches in Social Science Research	
	or ANTH 4560	
	Select one of the following:	3
	ANTH 3920 Indians Of North America	
	ANTH 3850 Peoples Of World: An Evolutionary Approach	
	ANTH 3940 Peoples Of Subsaharan Africa	
ANTH 4200	History and Theory in Anthropology-WAC	3
ANTH 2000	Proseminar In Anthropology I	1
ANTH 4000	Proseminar In Anthropology II	2
	1 WAC in discipline	
<b>Electives</b>		
	Select 12 additional elective hours of anthropology courses from the 2100 level or above; 9.0 hours must be at the 3000-4000 levels.	12
Courses in the subfields of anthropology not listed in the catalog can sometimes be arranged through independent study with department faculty.		
<b>Total Hours</b>		<b>33</b>

Students should discuss their personal and professional interests with the undergraduate advisor before selecting elective courses to complete the major.

## Related Hours

The requirement of 18 related hours is to be met with the following:

Code	Title	Hours
<b>Related Hours</b>		
ARTH 2200	Ethnographic Art	3
LING 3150	Linguistic Principles	3
	or LING 4190 Sociolinguistics	



**Electives**

Select 12 hours of electives; six hours must be from the 3000/4000 level

**Total Hours 18**

In special circumstances, the undergraduate advisor may approve alternatives to those courses listed above. Students may not take P/NC in major or related courses.

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

<b>First Term</b>		<b>Hours</b>
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
ANTH 2000	Proseminar In Anthropology I	1
ANTH 2020	Introduction To Archaeology	3
ANTH 2700	Human Evolution	3
	Elementary Foreign Language I	4
	Arts/Humanities Core (Fine Art)	3
<b>Hours</b>		<b>18</b>
<b>Second Term</b>		
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
ANTH 2800	Cultural Anthropology	3
MATH 1180	Reasoning With Mathematics	3
or MATH 1200	or Mathematical Modeling and Problem Solving	
	Elementary Foreign Language II	4
	Natural Sciences Core	3
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
ANTH 3850	Peoples Of World: An Evolutionary Approach	3
or ANTH 3920	or Indians Of North America	
or ANTH 3940	or Peoples Of Subsaharan Africa	
	Intermediate Foreign Language I or approved culture course	3
	ENGL 2710-2800 Arts/Humanities Core (English Lit)	3
	Arts/Humanities Core (HIST 1010 - 1200)	3
	Natural Sciences Core	3
	Natural Sciences Core (Lab)	1
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
	ANTH 2100 or above: Major Elective	3
	ARTH 2200 Ethnographic Art	3
	Related or Minor course	3
	Intermediate Foreign Language II or approved culture course	3
	Elective	3
<b>Hours</b>		<b>15</b>

**Fifth Term**

ANTH 4440	People, Population, and Society:	3
or ANTH 4510	Demographic Analysis	
or ANTH 4520	or Field Methods in Archaeology	
	or Laboratory Methods In Archaeology	
or ANTH 4530	or Qualitative Approaches in Social Science Research	
or ANTH 4560	or	

ANTH 2100 or above:	Major Elective	3
LING 3150	Linguistic Principles	3
or LING 4190	or Sociolinguistics	

Related or Minor course	3
Social Sciences Core	3

**Hours 15**

**Sixth Term**

ANTH 4200	History and Theory in Anthropology-WAC	3
ANTH 2100 or above	Major Elective	3
ANTH 3000-	Major Elective	3
ANTH 4000		
	Diversity of U.S.	3
	Elective	2

**Hours 14**

**Seventh Term**

ANTH 4000	Proseminar In Anthropology II	2
ANTH 3000-	Major Elective	3
ANTH 4000		
ANTH 4XXX	Senior Project/Major Elective	3
	Elective 3000-4000 level	6

**Hours 14**

**Eighth Term**

Related or Minor course	3000-4000 level	3
ANTH 4XXX	Senior Project/Major Elective	3
	Elective 3000-4000 level	6

**Hours 12**

**Total Hours 120**

- PLO 1: Anthropological Knowledge: Students will be able to summarize and compare key terms, ideas, and concepts in Anthropology; students will demonstrate an ability to summarize the various subfields of Anthropology and discuss how they each contribute to our understanding of what it means to be human.
- PLO 2: Theoretical Knowledge: Students will be able to theorize the development of human culture, behavior, and biology and how they are integrated based on the major theoretical perspectives in Anthropology; students will be able to describe the historical development of the discipline and compare/contrast it with current anthropological approaches.
- PLO 3: Methodological Knowledge: Students will be able to describe methodological techniques in the four areas of anthropology, and be able to indicate which methods are appropriate for different research questions; students also will practice these methods in field and lab settings.

- PLO 4: Critical Thinking: Students will employ critical and analytical skills to critique, debate, and share opinions about scholarly works. They will apply problem solving skills and propose ways to address contemporary issues based on anthropological knowledge, theory, and methods.
- PLO 5: Personal and Social Responsibility: Students will be able to convey an understanding of personal and social responsibility.
- PLO 6: Communication: Students will demonstrate information literacy and communication skills.

## B.A. in Sociology

The undergraduate major of 33 hours must include the following:

Code	Title	Hours
SOC 2000	Proseminar In Sociology I	1
SOC 3270	Social Research Methods	3
SOC 3290	Social Statistics	3
SOC 4000	Proseminar In Sociology II	2
SOC 4040	Classical Theory	3
<b>Elective Courses</b>		
Select 21 hours <sup>1</sup>		21
<b>Related Hours</b>		
Select 18 related hours <sup>2</sup>		
<b>Total Hours</b>		<b>33</b>

<sup>1</sup> 21 additional elective hours of sociology courses, at least 15 of which must be at the 3000 or 4000 level. Students should discuss their personal and professional interests with the undergraduate adviser before selecting elective courses to complete the major.

<sup>2</sup> The requirement of 18 related hours is met with electives taken from at least four of the following disciplines: Africana Studies, Anthropology, Communications, Economics, Geography, History, Political Science, Psychology and Women's and Gender Studies. Fifteen of these hours must be taken at the 3000 or 4000 level. Students may not take P/NC in major or related courses.

Below is a sample plan of study. Consult your degree audit for your program requirements.

Code	Title	Hours
<b>First Term</b>		
AR 1000	First Year Orientation	1
SOC 1010	Introduction To Sociology (Social Sciences Core)	3
ENGL 1110	College Composition I	3
Elementary Foreign Language I		4
MATH 1180	Reasoning With Mathematics	3
HIST 1010 or HIST 1200	Europe To 1600 (Arts/Humanities Core) or	3
<b>Hours</b>		<b>17</b>
<b>Second Term</b>		
SOC 2000	Proseminar In Sociology I	1
SOC Major Elective		3
Elementary Foreign Language II		4

Natural Sciences Core		3
Natural Sciences Core (Lab)		1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
<b>Hours</b>		<b>15</b>

<b>Third Term</b>		
SOC Major Elective		3
Intermediate Foreign Language I or approved culture course		3
ENGL 2710 or ENGL 2800	Reading Fiction or Writing About Literature	3
Arts/Humanities Core (Fine Art)		3
Natural Sciences Core		3
<b>Hours</b>		<b>15</b>

<b>Fourth Term</b>		
SOC Major Elective		3
SOC Major Elective		3
Intermediate Foreign Language II or approved culture course		3
Social Sciences Core		3
Non-US Diversity		3
<b>Hours</b>		<b>15</b>

<b>Fifth Term</b>		
SOC 3290	Social Statistics	3
SOC 4040	Classical Theory	3
Related or Minor course (WAC)		3
Elective 3000-4000 level		5
<b>Hours</b>		<b>14</b>

<b>Sixth Term</b>		
SOC 3270	Social Research Methods	3
SOC 3000-SOC 4000	Major Elective (WAC)	3
Related or Minor course 3000-4000 level		3
Elective 3000-4000 level		3
Diversity of US		3
<b>Hours</b>		<b>15</b>

<b>Seventh Term</b>		
SOC Major Elective 3000-4000 level		3
SOC Major Elective 3000-4000 level		3
Related or Minor course 3000-4000 level		3
Elective 3000-4000 level		6
<b>Hours</b>		<b>15</b>

<b>Eighth Term</b>		
SOC 4000	Proseminar In Sociology II	2
Related or Minor course 3000-4000 level		6
Elective 3000-4000 level		6
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>120</b>

- PLO 1: Critical Thinking: Students will demonstrate critical thinking skills.



- PLO 2: Sociological Knowledge: Students will discuss, analyze and apply key concepts in sociology; express, defend, support and/or evaluate sociological ideas clearly and coherently.
- PLO 3: Communication: Students will demonstrate information literacy and communication skills.
- PLO 4: Theoretical Knowledge: Students will apply, critique, debate, and share opinions on multiple theoretical perspectives.
- PLO 5: Methodological Knowledge: Students will describe and employ various methodologies used to collect, analyze, and interpret empirical evidence in sociological research. They also will be able to appraise the rigor of other scholars' methods and design their own research projects.
- PLO 6: Statistical Knowledge: Students will be able to make inferences and predictions, and interpret findings.
- PLO 7: Personal and Social Responsibility: Students will demonstrate an understanding of personal and social responsibility and apply it to solving various social problems.

## Minor in Anthropology

To complete a minor in Anthropology, students must complete a minimum of 21 hours of course work: 15 hours of core courses in Anthropology and an additional 6 hours of elective courses of which 3 hours must be at the 3000 to 4000 levels in Anthropology (excluding ANTH 2000 and ANTH 4000).

Code	Title	Hours
<b>Required Courses</b>		
ANTH 2020	Introduction To Archaeology	3
ANTH 2700	Human Evolution	3
ANTH 2800	Cultural Anthropology	3
ANTH 3850	Peoples Of World: An Evolutionary Approach	3
or ANTH 3920	Indians Of North America	
or ANTH 3940	Peoples Of Sub-Saharan Africa	
ANTH 4440	People, Population, and Society: Demographic Analysis	3
or ANTH 4510	Field Methods in Archaeology	
or ANTH 4520	Laboratory Methods In Archaeology	
or ANTH 4530	Qualitative Approaches in Social Science Research	
or ANTH 4560		
<b>Advanced Course</b>		
Select six hours of course work in Anthropology of of which three must be at the 3000 to 4000 levels in anthropology with the approval of the departmental advisor (excluding ANTH 2000 and ANTH 4000)		6
<b>Total Hours</b>		<b>21</b>

- PLO 1: Anthropological Knowledge: Students will be able to summarize and compare key terms, ideas, and concepts in Anthropology; students will demonstrate an ability to summarize the various subfields of Anthropology and discuss how they each contribute to our understanding of what it means to be human.
- PLO 2: Theoretical Knowledge: Students will be able to theorize the development of human culture, behavior, and biology and how they are integrated based on the major theoretical perspectives in Anthropology; students will be able to describe the historical

development of the discipline and compare/contrast it with current anthropological approaches.

- PLO 3: Methodological Knowledge: Students will be able to describe methodological techniques in the four areas of anthropology, and be able to indicate which methods are appropriate for different research questions; students also will practice these methods in field and lab settings.
- PLO 4: Critical Thinking: Students will employ critical and analytical skills to critique, debate, and share opinions about scholarly works. They will apply problem solving skills and propose ways to address contemporary issues based on anthropological knowledge, theory, and methods.
- PLO 5: Personal and Social Responsibility: Students will be able to convey an understanding of personal and social responsibility.
- PLO 6: Communication: Students will demonstrate information literacy and communication skills.

## Minor in Sociology

Requirements for the undergraduate minor must include 21 hours configured as follows:

Code	Title	Hours
SOC 3270	Social Research Methods	3
SOC 3290	Social Statistics	3
SOC 4040	Classical Theory	3
<b>Elective Courses</b>		
Select 12 additional elective hours of sociology courses at the 3000 or 4000 level		12
<b>Total Hours</b>		<b>21</b>

## Department of Theatre and Film

### ACCREDITING BODY: National Association of Schools of Theatre (NAST)

Holly Monsos, Chair and Theatre Advisor  
 Daniel Thobias, Theatre Advisor  
 Steven Sakowski, Theatre Advisor  
 Holly Hey, Film Advisor  
 Tammy Kinsey, Film Advisor  
 Dr. Matt Yockey, Film Advisor

The Department of Theatre and Film at the University of Toledo, an undergraduate liberal arts department, actively engages students in creative practice, critical thinking and cross cultural/global exchange through the study and practice of live productions and cinema.

### Degrees Offered

- B.A. in Film/Video (p. 154)
- B.A. in Theatre (p. 156)
- Minor in Cinema Studies (p. 161)
- Minor in Film/Video (p. 161)
- Minor in Stage and Screen Performance (p. 162)

- Minor in Theatre Arts (p. 162)
- Minor in Theatre Design and Technology (p. 162)

Student may also be interested in these minor options:

- Interdisciplinary Minors (p. 207)
  - Minor in Digital Arts and Visual Communication (p. 207)
  - Minor in Documentary Production and Practice (p. 208)
  - Minor in Sound Production and Design (p. 208)
  - Minor in Visual Effects and Animation (p. 208)

The Bachelor of Arts programs in theatre and film/video are designed to prepare the student for a wide range of career options and/or postgraduate study through a strong liberal arts curriculum. Students may choose a bachelor of arts major in either theatre or film.

The BA in Theatre includes a total of 45 hours. Theatre majors take 33 required hours as well as an additional 12 hours in the concentration of their choice, either Stage and Screen Acting or Theater Design and Technology. The BA in Film/Video includes 39 required hours and an additional 9 hours of required major electives.

#### **FILM 1310 Introduction To Film**

[3 credit hours]

Introduction to the history and interpretation of cinema as art form, with emphasis on discovering how meaning is encoded in film at the levels of shot, sequence and narrative construction. (Not recommended or required for majors.)

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

#### **FILM 2230 Creative Approaches to Cinema**

[3 credit hours]

An introductory course focused on visual storytelling through the examination and construction of the still image. Emphasis on interpreting photography, paintings and stories designed within the construct of the single image. This course uses lectures, readings and in-class exercises to produce creative narratives through photo-romans. Students must have taken or be co-enrolled in Critical Approaches to Cinema, Film 2340.

3 credit hours.

**Corequisites:** FILM 2330

**Term Offered:** Fall

#### **FILM 2310 Film I**

[3 credit hours]

An intensive production/seminar course for creative film making utilizing 16mm celluloid film. Individual and group production exercises. Students must purchase supplies.

**Prerequisites:** FILM 2340 with a minimum grade of C or FILM 2330 with a minimum grade of C

**Term Offered:** Spring

#### **FILM 2320 Digital Cinema Production I - WAC**

[3 credit hours]

An intensive production/seminar course exploring digital media as means for creative expression. Students purchase supplies. For majors and minors only, or by permission of instructor. Prerequisites: Grade of C or better in FILM 2330 or FILM 2340. May not take simultaneously with FILM 2310. Writing Intensive (WAC) course. Non-majors seek instructor consent for permit.

**Prerequisites:** FILM 2330 with a minimum grade of C or FILM 2340 with a minimum grade of C

**Term Offered:** Fall

#### **FILM 2330 Critical Approaches to Cinema**

[3 credit hours]

A critical approach to the development of cinema as an industrial, artistic and ideological practice. Emphasis on theories of film construction and interpretation and the development of analytical skills for cinema studies. Screenings included in class.

**Term Offered:** Spring, Fall

#### **FILM 2350 Cinema History**

[3 credit hours]

A study of the major movements and authors of Cinema History. Screenings included in class.

**Term Offered:** Spring, Summer, Fall

#### **FILM 2990 Special Projects**

[1-3 credit hours]

Individual study provides the student an opportunity to work independently on a problem of special interest in Film/Video under the direction of the faculty. For Freshman and Sophomore students.

#### **FILM 3200 Directing Screen Acting**

[3 credit hours]

This studio course trains students to actively view a scene, assess the effectiveness of script, acting and directing, and discuss it critically. It identifies components of story, script and character - and how to build this with the cast. Focus is placed on characteristics required to play a role, successfully cast actors through auditions, and run an effective rehearsal. Lessons focus on production etiquette, communication, and techniques necessary to film a story.

**Term Offered:** Fall

#### **FILM 3330 Critical Approaches to Cinema II**

[3 credit hours]

Intermediate critical analysis of film, concentrating on a specific style, genre, national cinema of the West, or filmmaker. Emphasis on theories of film construction and interpretation. Screenings included in class. Topics vary, may be repeated to 9 hours.

**Prerequisites:** FILM 2340 with a minimum grade of C or FILM 2330 with a minimum grade of C

**Term Offered:** Spring, Fall

**FILM 3350 Screenwriting - WAC**

[3 credit hours]

This course involves practical analysis of screenplays, emphasizing story structure and characterization. Students plan, write and refine story lines before writing actual scripts.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**FILM 3370 Documentary Film**

[3 credit hours]

A study of the major movements and authors of Documentary Film. Screenings included in class.

**Prerequisites:** (ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D-) and FILM 2350 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**FILM 3380 Experimental Film**

[3 credit hours]

A study of the major movements and authors of Experimental Film. Screenings included in class.

**Prerequisites:** (ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D-) and FILM 2350 with a minimum grade of C

**Term Offered:** Spring, Fall

**FILM 3390 History of Video Art**

[3 credit hours]

A study of the major movements of the History of Video Art and Installation. Screenings included in class.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or FILM 2350 with a minimum grade of C

**Term Offered:** Spring, Fall

**FILM 3430 Global Cinema**

[3 credit hours]

A study of the major movements and authors of non-US cinema. Screenings included in class. Topics vary, may be repeated to 9 hours.

**Prerequisites:** FILM 2340 with a minimum grade of C or FILM 2330 with a minimum grade of C

**Term Offered:** Spring, Fall

**FILM 3510 Cinematography and Color Grading**

[3 credit hours]

A production/seminar course concentrating on how the language of the image is influenced by camera format fundamentals and color. In-class demonstrations and exercises, as well as outside of class workshops and individual production(s). Majors and minors only.

**Prerequisites:** FILM 2310 with a minimum grade of C and FILM 2320 with a minimum grade of C

**Term Offered:** Spring, Fall

**FILM 3530 Animation and Optical Printing**

[3 credit hours]

Intensive production/seminar course in the creation of animation and special effects for film and digital work. Hand-drawn, cut-out, stop-motion, pixilation and various optical effects are explored through in-class exercises and individual productions. Majors and minors only. Interested non-majors should seek instructor permission to enroll.

**Prerequisites:** FILM 2310 with a minimum grade of D-

**Term Offered:** Spring, Fall

**FILM 3550 Producing and Production Management**

[3 credit hours]

Inquiry into the financial, logistical, and organizational aspects of film and video production, focusing on the roles of the line producer, production manager, assistant director and their teams. No prerequisite.

**Term Offered:** Spring

**FILM 3560 Methods for the Professional Editor**

[3 credit hours]

A production/seminar course that prepares students for professional practice in digital post-production methods and concepts. In-class exercises and individual production work done outside of class are required for the course. Majors and minors only. Interested non-majors should seek instructor permission to enroll.

**Prerequisites:** FILM 2320 with a minimum grade of C

**Term Offered:** Spring, Fall

**FILM 3730 Directing for Camera**

[3 credit hours]

A production/seminar course focusing on directing dramatic scenes for camera with emphasis on effective director/actor communication and the creation of dramatically meaningful camera and actor blocking. Majors and minors only. Interested non-majors should seek instructor permission to enroll.

**Prerequisites:** FILM 2310 with a minimum grade of C and FILM 2320 with a minimum grade of C

**Term Offered:** Spring, Fall

**FILM 3820 Documentary Field Production**

[3 credit hours]

Advanced production class focusing on the unique challenges of field production. Various types of documentary work are explored through field assignments relating to social and scientific subjects. This course includes local and regional production work as well as study abroad options.

**Prerequisites:** FILM 2310 with a minimum grade of D- and FILM 2320 with a minimum grade of D-

**Term Offered:** Spring

**FILM 4220 Media Studies**

[3 credit hours]

Covering issues concerned with film and media history, theory, and criticism and the interrelationship of film to television, radio, print, and/or the Internet. Particular focus of the course can change. Repeatable for credit.

**Prerequisites:** FILM 2340 with a minimum grade of C or FILM 2330 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**FILM 4310 Advanced Production**

[3 credit hours]

A production/seminar course focused on advanced production techniques that intersect celluloid and raw cinema capture. Emphasis on narrative, double system/sync-sound recording, lighting, and editing/coloring/scoring of on-screen drafts. Individual and group project work required inside and outside class. Students may need to purchase supplies. Interested non-majors should seek instructor permission to enroll.

**Prerequisites:** FILM 3510 (may be taken concurrently) with a minimum grade of C or FILM 3560 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Fall**FILM 4320 Film/Video Workshop**

[3 credit hours]

A production/seminar course for advanced independent production projects, including screenwriting. Regular critiques of work in progress. Requires project proposal and instructor permission for admission. Larger projects may be completed over multiple semesters. May be repeated up to 6 hours.

**Prerequisites:** FILM 3310 with a minimum grade of D- or FILM 3320 with a minimum grade of D- or FILM 3350 with a minimum grade of D- or FILM 3360 with a minimum grade of D-

**Term Offered:** Spring**FILM 4330 Critical Approaches to Cinema III**

[3 credit hours]

Advanced critical analysis of film, concentrating on a specific style, genre, national cinema of the West, or filmmaker. Emphasis on theories of film construction and interpretation. Screenings included in class. Topics vary, may be repeated to 9 hours.

**Prerequisites:** FILM 2330 with a minimum grade of C

**Term Offered:** Spring, Fall**FILM 4940 Internship**

[1-6 credit hours]

Internship with an approved program, company, or agency in Film. Video or television. (repeatable for 6 credit hours)

**Term Offered:** Spring, Summer, Fall**FILM 4950 Honors Thesis**

[3 credit hours]

Research or a creative project on a topic in Film or Video. Required of all BA candidates seeking department honors. (Repeatable for 6 credit hours.)

**Term Offered:** Spring, Summer, Fall**FILM 4990 Special Projects**

[1-3 credit hours]

Individual study provides the student an opportunity to work independently on a problem of special interest in Film/Video under the direction of the faculty. For Junior and senior students.

**Term Offered:** Spring, Summer, Fall**THR 1010 Acting for Non Majors**

[3 credit hours]

Learn the fundamentals of acting through exercises, devised playmaking and scene study. Through active class participation, the student discovers an understanding of the basic artistic process of the performer and how that process may lead to self-realization and heightened awareness.

**Term Offered:** Spring, Summer, Fall**THR 1030 Stagecraft and Theatre Technology**

[3 credit hours]

[3 hours] Introduction to theatre technology using the tools and practices utilized in set construction, properties scene painting and scene design. Lectures, readings and projects with practical laboratory experience.

**Term Offered:** Spring, Fall**THR 1040 Stage Lighting and Sound Technology**

[3 credit hours]

Introduction to theory and practice in stage lighting and sound. Students will use lighting and sound tools and equipment in production crews on department productions.

**Term Offered:** Spring, Fall**THR 1050 Costume Technology**

[3 credit hours]

Introduction to the theory and practice of stage costuming. Lectures, readings and projects offer practical laboratory experiences. Students will use tools and equipment of the costume shop on production crews.

**Term Offered:** Spring, Fall**THR 1100 Introduction To Theatre**

[3 credit hours]

Introductory survey of the development of theatre and drama from the ancient world to the present day; discussion of representative plays; slides and films complement lectures. (Not recommended or required for majors.)

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**THR 2000 Theatre Production Practicum**

[0 credit hours]

Students will be assigned a crew position for one of the department productions.

**Term Offered:** Spring, Fall**THR 2020 Theatre Performance Practicum**

[1-3 credit hours]

Lab course introducing students to the departmental production program through participation as a performer.

**Term Offered:** Spring, Summer, Fall**THR 2050 Theatre Shop Practicum**

[0 credit hours]

Lab course where students apply skills from foundational design and technology courses in support of the departmental production program. Practicum II students serve in departmental workshops throughout the semester. The course is credit/no credit.

**Prerequisites:** THR 1030 with a minimum grade of D- and THR 1040 with a minimum grade of D- and THR 1050 with a minimum grade of D-

**THR 2100 Departmental Ensemble**

[0 credit hours]

A collaborative colloquium course in support of departmental production and academic programming. This course is credit/no credit.

**THR 2200 Script Analysis**

[3 credit hours]

A survey of various playwriting and performance text composition structures from ancient to contemporary periods. Students will focus on the most prevalent and ground-breaking dramaturgical methods in the historical practice of dramatic composition.

**Term Offered:** Spring, Fall**THR 2400 Fundamentals of Design**

[3 credit hours]

Fundamentals of Design is an introduction to visual communications, styles and techniques. It also includes a thorough exploration of basic aesthetic theory as it applies to all elements of visual design. Fundamentals of Design will develop skills of script analysis, as well as explore designing for the stage and screen as a means of communication, artistic expression and the organization of design information.

**Prerequisites:** THR 2200 with a minimum grade of D-**Term Offered:** Fall**THR 2420 Stage Makeup**

[3 credit hours]

[2 hours] Introduction to principles and techniques of makeup for the stage. Students explore practical executions of stage makeup problems. Topics may include special effects, old age techniques, creature design, period specific makeup and makeup design. Students are required to purchase supplies.

**Term Offered:** Spring, Fall**THR 2600 Acting I**

[3 credit hours]

An introduction to the art and craft of acting. Through scene work and improvisation, students learn to use acting terminology, identify dramatic beats, develop character objectives and play actions. Students who are not theatre majors or minors must get permission of instructor.

**Term Offered:** Spring, Fall**THR 2640 Voice And Movement**

[3 credit hours]

Theory and practice of vocal and physical techniques for the actor. Repeatable for up to 8 hours of credit.

**Prerequisites:** THR 2600 with a minimum grade of D- or THR 2610 with a minimum grade of D- or THR 1010 with a minimum grade of D-**Term Offered:** Spring, Fall**THR 2660 Acting for the Camera I**

[3 credit hours]

Performing dramatic material for camera with an emphasis on the differences between stage and screen performing.

**Prerequisites:** THR 2610 with a minimum grade of D- or THR 2600 with a minimum grade of D-**THR 2700 Introduction to Dance**

[3 credit hours]

This course is an introduction to the art of dance. Movement sessions will include ballet, jazz, and contemporary dance technique, along with exploration in dance improvisation, composition, and performance.

**Term Offered:** Spring**THR 2990 Special Projects**

[1-3 credit hours]

Individual study provides a student an opportunity to work independently on a problem of special interest in theatre under the direction of the faculty. (Seminar forms available in the department office.)

**Term Offered:** Spring, Fall**THR 3150 Theatre History - Ancient to Contemporary - WAC**

[3 credit hours]

This course explores major developments and trends in theatrical production, theory, and playwriting from ancient times to the Present. The study of theatre history in this course is applied to the development of design and directorial approaches for plays by theatre artists. In addition, students will use performance techniques in class to explore historical production methods and theatrical theories through practice.

**Prerequisites:** ENGL 1110 with a minimum grade of D-**Term Offered:** Spring, Fall**THR 3210 Playwriting**

[3 credit hours]

Creative writing for the theatre analyzing traditional and contemporary structure and style.

**Prerequisites:** ENGL 2720 with a minimum grade of D- or THR 2200 with a minimum grade of D-**Term Offered:** Spring, Fall**THR 3250 Theatre and Stage Management**

[3 credit hours]

Theatre & Stage Management will provide students with a general overview of the administrative and management functions of an arts organization as well as an introductory look at the responsibilities and process of stage management. Through readings and videos, interactive discussion forums, research projects, and practical assignments, the student will develop an understanding of the structure and business of the performing arts and its various management positions, translating traditional business practices into the language of the arts.

**Term Offered:** Spring, Summer, Fall**THR 3340 Acting for the Camera II**

[3 credit hours]

This course is directed toward third and fourth year acting students at University of Toledo's Department of Theatre and Film who have completed Acting for the Camera I. It is designed to reinforce and build upon the principles explored in Acting for the Camera I.

**Prerequisites:** THR 3610 with a minimum grade of D- or THR 2660 with a minimum grade of D-**Term Offered:** Spring**THR 3410 Stage Lighting Design**

[3 credit hours]

Principles and theories of lighting design for theatrical productions are explored. Develop skills of script analysis, light study, light plot and related graphics for conceptualization and communication of design ideas.

**Prerequisites:** THR 1040 with a minimum grade of D- and THR 2400 with a minimum grade of D-**Term Offered:** Spring



**THR 3430 Advanced Stagecraft and Technical Production**

[3 credit hours]

This course is designed to expand upon the foundation of scenic construction techniques formed in basic theatre practices: Stagecraft. Topics include welding/metalworking, advanced woodworking, scenic automation, theatrical rigging, and technical direction/project management/shop management.

**Prerequisites:** THR 1030 with a minimum grade of D-

**THR 3440 Stage Scenic Design**

[3 credit hours]

Theory and principles of scenic design for stage are the focus. Conceptualization and communication of design ideas are explored through renderings, models, ground plans and elevations. Students are required to purchase supplies.

**Prerequisites:** THR 2400 with a minimum grade of D-

**Term Offered:** Fall

**THR 3450 Scene Painting**

[3 credit hours]

Students learn the fundamental skills of the scenic artist in large scale painting: preparing and sizing the surfaces, gridding and other layout, and painting techniques and tools used by the scenic artist.

**THR 3460 Advanced Costume Construction**

[3 credit hours]

This course builds upon the skills developed in THR 1050 Costuming. Advanced techniques will be explored such as pattern development, construction of several garments from pattern to finishing, as well as development of additional advanced hand sewing techniques.

**Prerequisites:** THR 1050 with a minimum grade of D-

**Term Offered:** Spring, Fall

**THR 3470 Stage Sound Design**

[3 credit hours]

Students study the methods and techniques of sound production and design used in the theatre. Tools and techniques of audio production are used in laboratory recording and mixdown.

**Prerequisites:** THR 1040 with a minimum grade of D- or MUS 2270 with a minimum grade of D-

**Term Offered:** Spring

**THR 3480 Stage Costume Design**

[3 credit hours]

Principles and theories of costume design for theatrical productions are explored. Develop skills of script analysis, sketching, fabric study and rendering for conceptualization and communication of design ideas. Students are required to purchase supplies.

**Prerequisites:** THR 1050 with a minimum grade of D-

**THR 3600 Acting II**

[3 credit hours]

Students are exposed to a range of techniques explicated by primary acting theorists/practitioners, including diagnosis of individual skills, work in voice, movement, textual analysis and scene preparation.

**Prerequisites:** THR 2610 with a minimum grade of D- or THR 2600 with a minimum grade of D-

**Term Offered:** Spring

**THR 3710 Directing I**

[3 credit hours]

The director's approach to analyzing a script, formulating a production concept and realizing that concept on stage. Discussions and exercises progress to directing scenes or short plays in class.

**Prerequisites:** THR 2400 with a minimum grade of D- and THR 2610 with a minimum grade of D- and THR 3150 with a minimum grade of D- or THR 4150 with a minimum grade of D-

**Term Offered:** Spring, Fall

**THR 3800 Production**

[1-3 credit hours]

Through study and practice the student contributes significantly to department productions. This course is for students who have auditioned for roles or applied for design/tech positions in department productions.

**Term Offered:** Spring, Summer, Fall

**THR 3990 Professional Conference-Festival Practicum**

[0 credit hours]

A lab course in support of preparation and participation in pre-professional experiences, conferences and/or festivals. There is a lab fee in support of student travel and expenses.

**Term Offered:** Spring, Fall

**THR 4150 Theatre Studies**

[3 credit hours]

Application of the methods of theatre history, theory, and criticism to the exploration of a specific theatrical theme, style, historical period, or practice.

**THR 4250 Administration and Management of the Arts**

[3 credit hours]

Administration and Management of the Arts will provide undergraduate and graduate students with an advanced look at the managerial, structural, and operational functions of visual and performing arts organizations, translating traditional business practices into the language of the arts.

**Term Offered:** Spring, Summer, Fall

**THR 4260 Promoting the Visual and Performing Arts**

[3 credit hours]

Promoting the Visual and Performing Arts will provide undergraduate and graduate students with an advanced look at the theoretical and functional practice of publicizing and advancing visual and performing arts organizations, ranging from consumer behaviors and analysis to campaign communications and strategies.

**Term Offered:** Spring, Summer, Fall

**THR 4270 Advanced Theatre Management**

[1-3 credit hours]

Study and application of professional practices of a specific Theatre Management position, including but not limited to Box Office, House and Production Management, as they pertain to the theatrical production. Emphasis is placed on the duties, responsibilities and procedures from pre-production to post-production planning.

**Prerequisites:** THR 3250 with a minimum grade of D-

**Term Offered:** Spring, Fall

**THR 4310 Acting for the Camera III**

[3 credit hours]

This course is directed toward fourth year and Capstone acting students at University of Toledo's Department of Theatre and Film who have completed Acting for the Stage I and Acting for the Camera I and II. It is designed to reinforce and build upon the principles explored in Acting for the Camera II. The course will consist of developing characters from dialogue, improvisation and writing, while creating a story with advanced filmmakers from the Film Department.

**Prerequisites:** THR 2660 with a minimum grade of D-**Term Offered:** Spring**THR 4400 Seminar Topics In Design**

[3 credit hours]

Individual and group investigations of particular topics in all phases of design and technology, i.e. scene painting, advanced design and rendering technique, new technology.

**Term Offered:** Spring, Fall**THR 4420 Advanced Project/Stage Management**

[1-3 credit hours]

Study and application of professional practices of the Project/Stage/Company Manager as they pertain to the theatrical production. Emphasis is placed on the duties, responsibilities and procedures from pre-production to post-production planning.

**Prerequisites:** THR 3250 with a minimum grade of D-**Term Offered:** Spring, Fall**THR 4440 Theatre Design**

[3 credit hours]

Principles and theories for theatrical design are explored through real world implementation on departmental productions.

**Term Offered:** Spring, Fall**THR 4600 Acting III**

[3 credit hours]

Advanced acting course with a focus on text analysis and the technique and craft of performance.

**Prerequisites:** (THR 2600 with a minimum grade of D- or THR 2610 with a minimum grade of D-) and (THR 2620 with a minimum grade of D- or THR 3600 with a minimum grade of D-)**Term Offered:** Spring, Fall**THR 4940 Internship**

[1-6 credit hours]

Internship with an approved program, company, or agency in theatre. Students must submit proposal for approval of instructor. (Repeatable for 6 hours credit.)

**Term Offered:** Spring, Summer, Fall**THR 4950 Honors Thesis**

[3 credit hours]

Research or a creative project on a topic in theatre. Required of all candidates seeking department honors. (Repeatable for 6 hours credit.)

**Term Offered:** Spring, Fall**THR 4990 Special Projects**

[1-3 credit hours]

Individual study provides a student an opportunity to work independently on a problem of special interest in theatre under the direction of the faculty.

**Term Offered:** Spring, Fall

## B.A. in Film/Video

### General Guidelines for the Bachelor of Arts

No more than 50 hours in the major courses are allowed for the Bachelor of Arts major. Any hours over 50 will not count toward the degree.

A student majoring in theatre or film may petition to substitute a comparable course or courses for one or more of the required courses in the major. Such requests should be made in writing to the department Chair and are subject to approval by the department faculty.

The requirement of 18 hours in related courses must be met with courses chosen from a list of approved courses in the student's Degree Audit. Choose these courses in consultation with the departmental advisor. Related courses must be chosen from courses acceptable for major credit, not courses that were approved for general or distributive requirements at university or college level.

The P/NC option is available to theatre and film majors in the areas of the major.

When a FILM course is a prerequisite for another FILM course, a grade of C or better must have been earned in the prerequisite course.

A minimum of 48 hours in film/video to include the following:

Code	Title	Hours
FILM 2230	Creative Approaches to Cinema	3
FILM 2310	Film I	3
FILM 2320	Digital Cinema Production I - WAC	3
FILM 2330	Critical Approaches to Cinema	3
FILM 2350	Cinema History	3
FILM 3200	Directing Actors for the Screen	3
FILM 3330	Critical Approaches to Cinema II	3
FILM 3350	Screenwriting - WAC	3
FILM 3430	Global Cinema	3
FILM 3550	Producing and Production Management	3
FILM 4220	Media Studies	3
or FILM 4310	Narrative Film Production	
FILM 4320	Film/Video Workshop <sup>1</sup>	3
FILM 4330	Critical Approaches to Cinema III	3
Select 3 hours from:		3
FILM 3370	Documentary Film	
FILM 3380	Experimental Film	
FILM 3390	History of Video Art	
Select 3 hours from:		3
FILM 3510	Cinematography and Color Grading	
FILM 3560	Methods for the Professional Editor	
Select 3 hours from:		3
FILM 3530	Animation and Optical Printing	
FILM 3730	Directing for Camera: Styles and Techniques	

FILM 3820	Documentary Field Production	
<b>Total Hours</b>		<b>48</b>

<sup>1</sup> May be taken more than once.

Below is a sample plan of study. Consult your degree audit for your program requirements.

Some Film courses are offered every other year.

First Term		Hours
AR 1000	First Year Orientation	1
Arts/Humanities Core (Communication)		3
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
FILM 2230	Creative Approaches to Cinema	3
FILM 2330	Critical Approaches to Cinema	3
<b>Hours</b>		<b>16</b>

Second Term		Hours
FILM 2350	Cinema History	3
FILM 2310	Film I	3
FILM 3550	Producing and Production Management	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>16</b>

Third Term		Hours
FILM 2320	Digital Cinema Production I - WAC	3
Elementary Foreign Language I		4
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
Social Science Core		3
Related Fields or Minor Course <sup>1</sup>		3
<b>Hours</b>		<b>16</b>

Fourth Term		Hours
Select one of the following:		3
FILM 3370	Documentary Film	
FILM 3380	Experimental Film	
FILM 3390	History of Video Art	
FILM 3430	Global Cinema	3
Natural Sciences Core		3
Elementary Foreign Language II		4
Related Fields course or minor <sup>1</sup>		3
<b>Hours</b>		<b>16</b>

Fifth Term		Hours
Select one of the following:		3
FILM 3510	Cinematography and Color Grading	
FILM 3560	Methods for the Professional Editor	
FILM 3330	Critical Approaches to Cinema II	3
Intermediate Foreign Language I or approved culture course		3
Arts/Humanities (History)		3

Related Fields or Minor Course <sup>1</sup>	3
<b>Hours</b>	<b>15</b>

Sixth Term		Hours
FILM 3350	Screenwriting - WAC	3
Select one of the following:		3
FILM 3530	Animation and Optical Printing	
FILM 3730	Directing for Camera: Styles and Techniques	
FILM 3820	Documentary Field Production	
Intermediate Foreign Language II or approved culture course		3
Social Sciences Core		3
U.S. Diversity course		3
<b>Hours</b>		<b>15</b>

Seventh Term		Hours
FILM 3200	Directing Actors for the Screen	3
FILM 4330	Critical Approaches to Cinema III	3
Related Fields or minor course <sup>1</sup>		6
Non-US Diversity		3
<b>Hours</b>		<b>15</b>

Eighth Term		Hours
FILM 4310	Narrative Film Production	3
or FILM 4220	or Media Studies	
FILM 4320	Film/Video Workshop	3
Elective		2
Related or minor course <sup>1</sup>		3
<b>Hours</b>		<b>11</b>

<b>Total Hours</b>	<b>120</b>
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<sup>1</sup> Department recommends students consider THR 1040; THR 2400; THR 2420 THR 2600; THR 3410 as options.

## HONORS IN FILM/VIDEO

Qualified juniors and seniors may apply to work for honors in film/video. The following are requirements for entrance into the Honors Program in film/video:

- Admission:**
    - Minimum GPA of 3.3 in film/video courses;
    - Minimum cumulative GPA of 3.0; and
    - Completion of 12 hours in film/video
  - Requirements:** A student must have completed nine hours of honors course work in film/video before beginning the thesis project. The honors topic and project are to be developed in close conjunction with an honors faculty adviser. A student may enroll for the thesis paper/project in FILM 4950 Honors Thesis for a maximum of six hours of credit. The designation "honors" on the diploma will be given to students who receive a grade of A on the honors thesis and maintain a 3.3 GPA in film/video.
- PLO 1. Students will identify, evaluate, and critique the aesthetic, thematic, ideological, and philosophical elements of various film and media texts.



- PLO 2. Students will synthesize theoretical writings on film and media with their own critical perspective.
- PLO 3. Through written presentation, students will construct and apply critical perspectives regarding the aesthetics and theories of film and media.
- PLO 4. Students will demonstrate proficiencies in the fundamentals of filmmaking.
- PLO 5. Students will examine a variety of aesthetic expressions of the moving image to expand their social and cultural awareness.
- PLO 6. Students will create a variety of aesthetic expressions using moving images to develop artistic and professional methods.

## B.A. in Theatre

The BA in Theatre degree offers concentration :

- Stage and Screen Acting
- Theatre Arts
- Theatre Design & Technology

## General Guidelines for the Bachelor of Arts

No more than 50 hours in the major courses are allowed for the Bachelor of Arts major. Any hours over 50 will not count toward the degree.

A student majoring in theatre or film may petition to substitute a comparable course or courses for one or more of the required courses in the major. Such requests should be made in writing to the department Chair and are subject to approval by the department faculty.

The requirement of 18 hours in related courses must be met with courses chosen from a list of approved courses in the student's Degree Audit. Choose these courses in consultation with the departmental advisor. Related courses must be chosen from courses acceptable for major credit, not courses that were approved for general or distributive requirements at university or college level.

The P/NC option is available to theatre and film majors in the areas of the major.

The BA in Theatre consists of 33 required hours, plus one 12 hour concentration, in either "Stage and Screen Acting (p. 156)", "Theatre Arts (p. 156)" or "Theatre Design & Technology (p. 157)", for a total of 45 hours:

### Theatre - Stage and Screen Acting Concentration, BA

Code	Title	Hours
<b>Required Courses</b>		
THR 1030	Stagecraft and Theatre Technology	3
THR 1040	Stage Lighting and Sound Technology	3
THR 1050	Costume Technology	3
THR 2000	Theatre Production Practicum <sup>1</sup>	0
THR 2050	Theatre Shop Practicum <sup>1</sup>	0
THR 2100	Departmental Ensemble <sup>2</sup>	0
THR 2200	Script Analysis	3

THR 2400	Fundamentals of Design	3
THR 2660	Acting for the Camera I	3
THR 2600	Acting I	3
THR 3150	Theatre History - Ancient to Contemporary - WAC	3
THR 3250	Theatre and Stage Management	3
THR 3710	Directing I	3
THR 4150	Theatre Studies	3
<b>Total Hours</b>		<b>33</b>

Students also select one concentration for 12 additional hours:

Code	Title	Hours
<b>Concentration in Stage and Screen Acting</b>		
<i>Required</i>		
THR 3340	Acting for the Camera II	3
THR 3600	Acting II	3
<i>Select 6 hours from:</i>		
THR 2020	Theatre Performance Practicum	6
THR 2420	Stage Makeup	
THR 2640	Voice And Movement	
THR 2990	Special Projects	
THR 3800	Production <sup>3</sup>	
THR 4310	Acting for the Camera III	
THR 4940	Internship	
THR 4600	Acting III	
THR 4950	Honors Thesis	
THR 4990	Special Projects	
<b>Total Hours</b>		<b>12</b>

<sup>1</sup> Must be taken twice.

<sup>2</sup> Must be taken every semester to graduate.

<sup>3</sup> No more than 6 credits of 3800 can count toward graduation.

### Theatre - Theatre Arts Concentration, BA

Code	Title	Hours
<b>Required Courses</b>		
THR 1030	Stagecraft and Theatre Technology	3
THR 1040	Stage Lighting and Sound Technology	3
THR 1050	Costume Technology	3
THR 2000	Theatre Production Practicum <sup>1</sup>	0
THR 2050	Theatre Shop Practicum <sup>1</sup>	0
THR 2100	Departmental Ensemble <sup>2</sup>	0
THR 2200	Script Analysis	3
THR 2400	Fundamentals of Design	3
THR 2660	Acting for the Camera I	3
THR 2600	Acting I	3
THR 3150	Theatre History - Ancient to Contemporary - WAC	3
THR 3250	Theatre and Stage Management	3
THR 3710	Directing I	3

THR 4150	Theatre Studies	3
<b>Total Hours</b>		<b>33</b>

Students also select one concentration for 12 additional hours:

Code	Title	Hours
<b>Concentration in Theatre Arts</b>		
<i>Required</i>		
THR 3600	Acting II	3
<i>Select 3 hours from:</i>		
THR 3410	Stage Lighting Design	3
THR 3430	Advanced Stagecraft and Technical Production	3
THR 3440	Stage Scenic Design	3
THR 3450	Scene Painting	3
THR 3460	Advanced Costume Construction	3
THR 3470	Stage Sound Design	3
THR 3480	Stage Costume Design	3
<i>Select 6 Hours from any other THR Courses</i>		6
<b>Total Hours</b>		<b>12</b>

<sup>1</sup> Must be taken twice.

<sup>2</sup> Must be taken every semester to graduate.

<sup>3</sup> No more than 6 credits of 3800 can count toward graduation.

**Theatre - Theatre Design & Technology Concentration, BA**

Code	Title	Hours
<b>Required Courses</b>		
THR 1030	Stagecraft and Theatre Technology	3
THR 1040	Stage Lighting and Sound Technology	3
THR 1050	Costume Technology	3
THR 2000	Theatre Production Practicum <sup>1</sup>	0
THR 2050	Theatre Shop Practicum <sup>1</sup>	0
THR 2100	Departmental Ensemble <sup>2</sup>	0
THR 2200	Script Analysis	3
THR 2400	Fundamentals of Design	3
THR 2660	Acting for the Camera I	3
THR 2600	Acting I	3
THR 3150	Theatre History - Ancient to Contemporary - WAC	3
THR 3250	Theatre and Stage Management	3
THR 3710	Directing I	3
THR 4150	Theatre Studies	3
<b>Total Hours</b>		<b>33</b>

Students also select one concentration for 12 additional hours:

Code	Title	Hours
<b>Concentration in Theatre Design &amp; Technology</b>		
<i>Select 12 hours from the following:</i>		
THR 2420	Stage Makeup	12

THR 2990	Special Projects	
THR 3410	Stage Lighting Design	
THR 3430	Advanced Stagecraft and Technical Production	
THR 3440	Stage Scenic Design	
THR 3450	Scene Painting	
THR 3460	Advanced Costume Construction	
THR 3470	Stage Sound Design	
THR 3480	Stage Costume Design	
THR 3800	Production <sup>3</sup>	
THR 4440	Theatre Design	
THR 4940	Internship	
THR 4950	Honors Thesis	
THR 4990	Special Projects	
<b>Total Hours</b>		<b>12</b>

<sup>1</sup> Must be taken twice.

<sup>2</sup> Must be taken every semester to graduate.

<sup>3</sup> No more than 6 credits of 3800 can count toward graduation.

The BA in Theatre plan of study by concentration:

- Stage and Screen Acting (p. 156)
- Theatre Arts (p. 158)
- Theatre Design & Technology (p. 157)

**Theatre-Stage and Screen Acting Concentration Plan of Study**

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

Note that some upper-level Theatre courses are offered every other year.

First Term	Hours
AR 1000 First Year Orientation	1
THR 2600 Acting I	3
Select one course from this list	3
THR 1030 Stagecraft and Theatre Technology	
THR 1040 Stage Lighting and Sound Technology	
THR 1050 Costume Technology	
THR 2000 Theatre Production Practicum	0
THR 2100 Departmental Ensemble	0
THR 2200 Script Analysis	3
ENGL 1110 College Composition I	3
Arts/Humanities Core (History)	3
<b>Hours</b>	<b>16</b>

Second Term	Hours
THR 2000 Theatre Production Practicum	0
Take remaining two from this list	6
THR 1030 Stagecraft and Theatre Technology	
THR 1040 Stage Lighting and Sound Technology	
THR 1050 Costume Technology	
THR 2100 Departmental Ensemble	0



ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
THR 2050	Theatre Shop Practicum	0
THR 2100	Departmental Ensemble	0
THR 2400	Fundamentals of Design	3
THR 2660	Acting for the Camera I	3
Elementary Foreign Language I		4
ENGL 2720	Reading Drama (Arts/Humanities Core (English Lit))	3
Social Sciences Core/Non-US Diversity		3
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
THR 2050	Theatre Shop Practicum	0
THR 2100	Departmental Ensemble	0
Either:		3
THR 3150	Theatre History - Ancient to Contemporary - WAC	
Or		
THR 4150	Theatre Studies	
THR 3250	Theatre and Stage Management	3
Elementary Foreign Language II		4
Social Sciences Core		3
Core Elective		3
<b>Hours</b>		<b>16</b>
<b>Fifth Term</b>		
THR 2100	Departmental Ensemble	0
THR 3710	Directing I	3
Intermediate Foreign Language I or approved culture course		3
Choose a SASA concentration course from this list:		3
THR 2420	Stage Makeup	
THR 2640	Voice And Movement	
THR 2990	Special Projects	
THR 3800	Production	
THR 4310	Acting for the Camera III	
THR 4600	Acting III	
THR 4940	Internship	
THR 4950	Honors Thesis	
THR 4990	Special Projects	
Related or Minor course		3
Core Elective/Diversity of US		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
THR 2100	Departmental Ensemble	0
Either:		3

THR 3150	Theatre History - Ancient to Contemporary - WAC	
Or		
THR 4150	Theatre Studies	
Choose a SASA concentration course from this list:		3
THR 3340	Acting for the Camera II	
THR 3600	Acting II	
Intermediate Foreign Language II or approved culture course		3
Related or minor course		3
Natural Sciences Core		3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
THR 2100	Departmental Ensemble	0
Add a SASA concentration course from this list:		3
THR 2420	Stage Makeup	
THR 2640	Voice And Movement	
THR 2990	Special Projects	
THR 3800	Production	
THR 4310	Acting for the Camera III	
THR 4600	Acting III	
THR 4940	Internship	
THR 4950	Honors Thesis	
THR 4990	Special Projects	
Related or minor course		6
Elective		6
<b>Hours</b>		<b>15</b>
<b>Eighth Term</b>		
THR 2100	Departmental Ensemble	0
Choose a SASA concentration course from this list:		3
THR 3340	Acting for the Camera II	
THR 3600	Acting II	
Related or minor course		6
Elective		6
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>124</b>

## Theatre- Theatre Arts Concentration Plan Of Study

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

Note that some upper-level Theatre courses are offered every other year.

<b>First Term</b>		<b>Hours</b>
AR 1000	First Year Orientation	1
THR 2600	Acting I	3
Select one course from this list		3
THR 1030	Stagecraft and Theatre Technology	
THR 1040	Stage Lighting and Sound Technology	
THR 1050	Costume Technology	
THR 2000	Theatre Production Practicum	0

THR 2100	Departmental Ensemble	0
THR 2200	Script Analysis	3
ENGL 1110	College Composition I	3
Arts/Humanities Core (History)		3
<b>Hours</b>		<b>16</b>

**Second Term**

THR 2000	Theatre Production Practicum	0
Take remaining two from this list		6
THR 1030	Stagecraft and Theatre Technology	
THR 1040	Stage Lighting and Sound Technology	
THR 1050	Costume Technology	
THR 2100	Departmental Ensemble	0
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>16</b>

**Third Term**

THR 2050	Theatre Shop Practicum	0
THR 2100	Departmental Ensemble	0
THR 2400	Fundamentals of Design	3
THR 2660	Acting for the Camera I	3
Elementary Foreign Language I		4
ENGL 2720	Reading Drama (Arts/Humanities Core (English Lit))	3
Social Sciences Core/Non-US Diversity		3
<b>Hours</b>		<b>16</b>

**Fourth Term**

THR 2050	Theatre Shop Practicum	0
THR 2100	Departmental Ensemble	0
Take Either:		3
THR 3150	Theatre History - Ancient to Contemporary	
or	- WAC	
THR 4150	or Theatre Studies	
THR 3250	Theatre and Stage Management	3
Elementary Foreign Language II		4
Social Sciences Core		3
Core Elective		3
<b>Hours</b>		<b>16</b>

**Fifth Term**

THR 2100	Departmental Ensemble	0
THR 3710	Directing I	3
Select 1 THTA concentration course from this list:		3
THR 3430	Advanced Stagecraft and Technical Production	
THR 3440	Stage Scenic Design	
THR 3460	Advanced Costume Construction	
THR 3480	Stage Costume Design	
Intermediate Foreign Language I or approved culture course		3

Related or Minor course	3
Core Elective/Diversity of US	3
<b>Hours</b>	<b>15</b>

**Sixth Term**

THR 2100	Departmental Ensemble	0
THR 3600	Acting II	3
Take Either:		3
THR 4150	Theatre Studies	
or	or Theatre History - Ancient to Contemporary - WAC	
THR 3150		
Intermediate Foreign Language II or approved culture course		3
Related or minor course		3
Natural Sciences Core		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

THR 2100	Departmental Ensemble	0
Select any other THR course for the THTA concentration		3
Related or minor course		6
Elective		6
<b>Hours</b>		<b>15</b>

**Eighth Term**

THR 2100	Departmental Ensemble	0
Select any other THR course for the THTA concentration		3
Related or minor course		6
Elective		6
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>124</b>

**Theatre-Theatre Design & Technology Concentration Plan Of Study**

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

Note that some upper-level Theatre courses are offered every other year.

<b>First Term</b>	<b>Hours</b>	
AR 1000	First Year Orientation	1
THR 2600	Acting I	3
Select one course from this list		3
THR 1030	Stagecraft and Theatre Technology	
THR 1040	Stage Lighting and Sound Technology	
THR 1050	Costume Technology	
THR 2000	Theatre Production Practicum	0
THR 2100	Departmental Ensemble	0
THR 2200	Script Analysis	3
ENGL 1110	College Composition I	3
Arts/Humanities Core (History)		3
<b>Hours</b>		<b>16</b>

**Second Term**

THR 2000	Theatre Production Practicum	0
Take remaining two from this list		6



THR 1030	Stagecraft and Theatre Technology	
THR 1040	Stage Lighting and Sound Technology	
THR 1050	Costume Technology	
THR 2100	Departmental Ensemble	0
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>16</b>

**Third Term**

THR 2050	Theatre Shop Practicum	0
THR 2100	Departmental Ensemble	0
THR 2400	Fundamentals of Design	3
THR 2660	Acting for the Camera I	3
Elementary Foreign Language I		4
ENGL 2720	Reading Drama (Arts/Humanities Core (English Lit))	3
Social Sciences Core/Non-US Diversity		3
<b>Hours</b>		<b>16</b>

**Fourth Term**

THR 2050	Theatre Shop Practicum	0
THR 2100	Departmental Ensemble	0
Either:		3
THR 3150	Theatre History - Ancient to Contemporary - WAC	
Or		
THR 4150	Theatre Studies	
THR 3250	Theatre and Stage Management	3
Elementary Foreign Language II		4
Social Sciences Core		3
Core Elective		3
<b>Hours</b>		<b>16</b>

**Fifth Term**

THR 2100	Departmental Ensemble	0
THR 3710	Directing I	3
Select 1 TDAT concentration course from this list:		3
THR 2420	Stage Makeup	
THR 2990	Special Projects	
THR 3430	Advanced Stagecraft and Technical Production	
THR 3440	Stage Scenic Design	
THR 3460	Advanced Costume Construction	
THR 3480	Stage Costume Design	
THR 3800	Production	
THR 4440	Theatre Design	
THR 4940	Internship	
THR 4950	Honors Thesis	
THR 4990	Special Projects	
Intermediate Foreign Language I or approved culture course		3

Related or Minor course	3	
Core Elective/Diversity of US	3	
<b>Hours</b>		<b>15</b>

**Sixth Term**

THR 2100	Departmental Ensemble	0
Either:		
THR 3150	Theatre History - Ancient to Contemporary - WAC	

## Or

THR 4150	Theatre Studies	
Select 1 TDAT concentration course from this list:		3
THR 2420	Stage Makeup	
THR 2990	Special Projects	
THR 3410	Stage Lighting Design	
THR 3450	Scene Painting	
THR 3470	Stage Sound Design	
THR 3800	Production	
THR 4400	Seminar Topics In Design	
THR 4940	Internship	
THR 4990	Special Projects	
Intermediate Foreign Language II or approved culture course		3

Related or minor course	3	
Natural Sciences Core	3	
Elective	3	
<b>Hours</b>		<b>15</b>

<b>Seventh Term</b>	
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THR 2100	Departmental Ensemble	0
Select 1 TDAT concentration course from this list:		3
THR 2420	Stage Makeup	
THR 2990	Special Projects	
Related or minor course		6
THR 3430	Advanced Stagecraft and Technical Production	
THR 3440	Stage Scenic Design	
THR 3460	Advanced Costume Construction	
THR 3480	Stage Costume Design	
THR 3800	Production	
THR 4440	Theatre Design	
THR 4940	Internship	
THR 4950	Honors Thesis	
THR 4990	Special Projects	
Elective		6

<b>Hours</b>		<b>15</b>
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**Eighth Term**

THR 2100	Departmental Ensemble	0
Select 1 TDAT concentration course from this list:		3
THR 2420	Stage Makeup	
THR 2990	Special Projects	
THR 3410	Stage Lighting Design	
THR 3450	Scene Painting	



THR 3470	Stage Sound Design	
THR 3800	Production	
THR 4440	Theatre Design	
THR 4940	Internship	
THR 4950	Honors Thesis	
THR 4990	Special Projects	
Related or minor course		6
Elective		6
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>124</b>

## HONORS IN THEATRE

Qualified juniors and seniors may apply to work for honors in theatre. The following are requirements for entrance into the Honors program in theatre:

### 1. Admission

- Minimum GPA of 3.3 in theatre courses;
- Minimum cumulative GPA of 3.0; and
- Completion of 12 hours in theatre.

**2. Requirements:** A student must have completed a minimum of nine hours of honors course work in theatre before beginning the thesis project. The honors topic and paper are to be developed in close conjunction with an honors faculty adviser. A student may enroll for the thesis paper/project in THR 4950 Honors Thesis for a maximum of six hours of credit. The designation "honors" on the diploma will be given to students who receive a grade of A on the honors thesis and maintain a 3.3 GPA in theatre.

- PLO 1. Students will be able to evaluate a diverse selection of theatrical voices, traditions and practices.
- PLO 2. Students will be able to evaluate theatrical work critically using appropriate terminology.
- PLO 3. Students will be able to professionally collaborate in theatre making.
- PLO 4. Students will be able to integrate theatrical storytelling skills.
- PLO 5. Students will be able to articulate their individual creative voice utilizing theatre theory practices.
- PLO 6. Students will meet appropriate professional expectations in the theatre arts.

## Minor in Cinema Studies

A minimum of 21 hours is required for minors in theatre and film, as follows for each minor:

Code	Title	Hours
<b>Required Courses</b>		
FILM 2330	Critical Approaches to Cinema	3
FILM 2350	Cinema History	3
FILM 3410		3
	or FILM 3420	

Select one of the following:		3
FILM 3370	Documentary Film	
FILM 3380	Experimental Film	
FILM 3390	History of Video Art	
Select one of the following:		3
FILM 2310	Film I	
FILM 2320	Digital Cinema Production I - WAC	
FILM 3350	Screenwriting - WAC	
<b>Electives</b>		
Select 6 hours of film electives		6
<b>Total Hours</b>		<b>21</b>

## Minor in Film/Video

A minimum of 21 hours is required for minors in Theatre and Film, as follows for each minor:

Code	Title	Hours
<b>Required Courses</b>		
FILM 2310	Film I	
FILM 2320	Digital Cinema Production I - WAC	
FILM 2330	Critical Approaches to Cinema	
FILM 2350	Cinema History	
<b>Cinema Studies</b>		
Select 1 or 2 of the following:		3-6
FILM 4220	Media Studies	
FILM 4330	Critical Approaches to Cinema III	
FILM 3330	Critical Approaches to Cinema II	
FILM 3430	Global Cinema	
FILM 2230	Creative Approaches to Cinema	
FILM 3370	Documentary Film	
FILM 3380	Experimental Film	
FILM 3390	History of Video Art	
WGST 4010	Women's Studies Topics In Film	
<b>Film Video Production</b>		
Select 1 or 2 of the following:		3-6
FILM 4940	Internship	
FILM 4950	Honors Thesis	
FILM 4990	Special Projects	
FILM 3510	Cinematography and Color Grading	
FILM 3550	Producing and Production Management	
FILM 3350	Screenwriting - WAC	
	or ENGL 306 Screenwriting - WAC	
FILM 3730	Directing for Camera: Styles and Techniques	
FILM 4320	Film/Video Workshop <sup>1</sup>	
FILM 4310	Narrative Film Production	
FILM 3530	Animation and Optical Printing	
FILM 3560	Methods for the Professional Editor	
FILM 3820	Documentary Field Production	

FILM 3200 Directing Actors for the Screen

**Total Hours** 18-24<sup>1</sup> May be taken more than once.

- Students will identify, evaluate and critique the aesthetic, thematic, ideological, and philosophical elements of various film and media texts.
- Students will synthesize theoretical writings on film and media with their own critical perspective.
- Through written presentation, students will construct and apply critical perspectives regarding the aesthetics and theories of film and media.
- Students will demonstrate proficiencies in the fundamentals of filmmaking including aesthetic expression, narrative structure, and technological literacy.
- Students will expand their artistic, personal, social, and cultural awareness through creative inquiry and critical observation.
- Students will create a variety of aesthetic expressions using moving images to develop artistic and professional method.

## Minor in Stage and Screen Performance

Stage and Screen Performance - 21 hours required

Code	Title	Hours
Required:		
THR 2000	Theatre Production Practicum	0
THR 2200	Script Analysis	3
THR 2600	Acting I	3
THR 2660	Acting for the Camera I	3
THR 3150	Theatre History - Ancient to Contemporary - WAC	3
THR 3250	Theatre and Stage Management	3
Select 6 credits:		
THR 2020	Theatre Performance Practicum	
THR 2640	Voice And Movement	
THR 3600	Acting II	
THR 3340	Acting for the Camera II	
THR 3710	Directing I	
<b>Total Hours</b>		<b>21</b>

- PLO 1. Students will be able to evaluate a diverse selection of theatrical voices, traditions and practices.
- PLO 2. Students will be able to evaluate theatrical work critically using appropriate terminology.
- PLO 3. Students will be able to professionally collaborate in theatre making.
- PLO 4. Students will be able to integrate theatrical storytelling skills.
- PLO 5. Students will be able to articulate their individual creative voice utilizing theatre theory practices.

- PLO 6. Students will meet appropriate professional expectations in the theatre arts.

## Minor in Theatre Arts

Code	Title	Hours
Select one:		
THR 1030	Stagecraft and Theatre Technology	3
THR 1040	Stage Lighting and Sound Technology	
THR 1050	Costume Technology	
Required:		
THR 2000	Theatre Production Practicum	0
THR 2200	Script Analysis	3
THR 2400	Fundamentals of Design	3
THR 2600	Acting I	3
THR 3150	Theatre History - Ancient to Contemporary - WAC	3
THR 3250	Theatre and Stage Management	3
THR elective		3
<b>Total Hours</b>		<b>21</b>

- PLO 1. Students will be able to evaluate a diverse selection of theatrical voices, traditions and practices.
- PLO 2. Students will be able to evaluate theatrical work critically using appropriate terminology.
- PLO 3. Students will be able to professionally collaborate in theatre making.
- PLO 4. Students will be able to integrate theatrical storytelling skills.
- PLO 5. Students will be able to articulate their individual creative voice utilizing theatre theory practices.
- PLO 6. Students will meet appropriate professional expectations in the theatre arts.

## Minor in Theatre Design and Technology

Code	Title	Hours
<b>Select Two From Below</b>		
THR 1030	Stagecraft and Theatre Technology	
THR 1040	Stage Lighting and Sound Technology	
THR 1050	Costume Technology	
<b>Required</b>		
THR 2000	Theatre Production Practicum	0
THR 2200	Script Analysis	3
THR 2400	Fundamentals of Design	3
THR 3250	Theatre and Stage Management	3
<b>Select Two From Below</b>		
THR 1030	Stagecraft and Theatre Technology <sup>1</sup>	
THR 1040	Stage Lighting and Sound Technology <sup>1</sup>	
THR 1050	Costume Technology <sup>1</sup>	
THR 2420	Stage Makeup	
THR 3410	Stage Lighting Design	

THR 3430	Advanced Stagecraft and Technical Production
THR 3440	Stage Scenic Design
THR 3450	Scene Painting
THR 3460	Advanced Costume Construction
THR 3470	Stage Sound Design
THR 3480	Stage Costume Design
THR 3800	Production

**Total Hours** **21**

<sup>1</sup> You may use any of these course not already used in the category above. Course may only be used once

- PLO 1. Students will examine and investigate a diverse selection of theatrical voices, traditions and practices in service of creating a more comprehensive and expansive knowledge of their craft.
- PLO 2. Students will construct critical perspectives about text, performance, production and design in both practice and theory.
- PLO 3. Students will skillfully apply the best practices in their area of concentration (performance, production, design and administration), and in theatre making as a whole.
- PLO 4. Students will develop and integrate theatrical storytelling skills and effective collaborative production processes.
- PLO 5. Students will investigate theatre theory practices and history in order to develop and articulate their individual creative voice.
- PLO 6. Students will compile the skill sets that best prepare them to meet the professional standards and expectations in the theatre arts.

## Department of Women's and Gender Studies

### Interdisciplinary Major

Sharon Barnes, Chair and Advisor

The Department of Women's and Gender Studies (WGST) prepares successful graduates who enter their chosen professions with cutting edge interdisciplinary analytical skills and intersectional knowledge that situates them well to succeed graduate school, professional degree programs, and the rapidly changing workplace. Our alum pursue engaging careers in both the public and private sectors, following their passion to work as medical doctors, social workers, teachers, domestic violence advocates, rape crisis center directors, prosecutors, lawyers, ministers, entrepreneurs, and policy advisors at the highest levels of government.

### WGST and the health professions

An increasing number of students interested in health-related careers choose WGST as their major, double major or minor because they find a wealth of opportunity after graduation when they bring gender expertise to their chosen fields. Students in the Pre-Med program may major in WGST, nursing, and other health majors may choose to double major or minor. Students with a particular interest in women's health and topics related to gender and healthcare may take courses such as: WGST 4810 Women's Health Care, WGST 4160 Health And Gender, WGST 3600: Feminist Health Humanities, and WGST 3980 Topics In Women's Studies

in partial fulfillment of the Women's and Gender Studies major electives. In addition, WGST students pursuing the Pre-Med option will be assigned a mentor from the medical profession to provide guidance and advice as they develop their career goals. Students who would like to pursue the WGST and Pre-Med option should speak with the department advisor and a Pre-Health advisor.

### WGST and Pre-Law

Students interested in attending law school also find a major in WGST impactful preparation for a career in private practice or public service. Since Pre-Law is not a specific major at the University of Toledo, those who would like to prepare themselves for law school may choose any academic major. The American Bar Association recommends gaining skills such as analytic/problem solving skills, critical reading and writing skills, oral communication/listening abilities, task management skills and research. The WGST degree provides students with the opportunity to gain all of these skills, including abundant opportunities to share them in a variety of public forums. In addition, undergraduates in Women's and Gender Studies who wish to study legal ideas, institutions, and procedures from the perspective of gender may pursue a concentration in Law and Social Thought by taking the following: LST 2010, LST 2500 (2 hours), and LST 4900 in partial fulfillment of the Women's and Gender Studies major electives, and LST 4940 (3 to 6 hours) to satisfy the Women's and Gender Studies internship requirement. Students should meet with the department advisor to discuss their specific academic plan.

### WGST and helping professions

Students interested in working on women's gender, and sexuality-related issues in social work, psychology, or any of the helping professions are invited to add WGST as a second major, minor, or concentration. Our specialized courses on adolescent girls (WGST 2020 and WGST 3030), intersectional oppressions, sexuality, and women and the body have been especially helpful for social work, early education students, and those who hope to work on anti-oppression issues. Critical feminist engagement of eating disorders, the social construction of beauty, heteronormativity, and the role of media will vitalize individual practice, help formulate stronger, more inclusive education strategies, and facilitate more effective activism to create more socially just institutions.

#### CONCENTRATIONS

WGST has a formal concentration in Sexualities Studies, along with the minor, and students can also focus their coursework in Law and Social Thought, Africana Studies, Disability Studies, or one of the more traditional disciplines. Focused research on gender in a variety of contexts addresses the critical need for gender and sexuality expertise in fields as diverse as medicine, law, social work, and teaching, and most occupations in between. Please speak to the department advisor for more information on these programs.

### Degrees Offered

- B.A. in Women's and Gender Studies (p. 166)
- Minor in Sexualities Studies (p. 168)
- Minor in Women's and Gender Studies (p. 169)



**WGST 2010 Introduction To Gender Studies: Gender, Sex And Difference**

[3 credit hours]

Interdisciplinary introduction to gender studies. Critically examines competing theories of gender and sex identification, construction, and biological determinism. Considers ethical and intersectional issues regarding differences of gender, sex and sexuality.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity

**WGST 2020 Girlhood and Adolescence**

[3 credit hours]

This class examines the adolescent experience of the American teenage girl using historical documents, current films, magazines, and popular teen fiction. This class looks at the complexities that race, socioeconomic status, ethnicity and sexual orientation have on the experience of the teenage girl. Students will have several opportunities to share their own adolescent experiences as they relate to assigned readings.

**Prerequisites:** WGST 2010 with a minimum grade of D- Multicultural US Diversity**WGST 2400 Women's Roles: A Global Perspective**

[3 credit hours]

The course focuses on the current and evolving social, economic and political status of women in the United States and selected non-Western societies.

**Term Offered:** Spring, Fall

Core Social Sciences, Multicultural Non-US Diversity, OT36 Social Science

**WGST 2640 Race, Class, And Gender**

[3 credit hours]

Introduction to the study of race, class and gender as factors in American stratification.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity, OT36 Social Science

**WGST 2880 Contemporary U.S. Queer Cultures**

[3 credit hours]

An interdisciplinary, multicultural examination of diverse lesbian, gay, bisexual, transgender, and other queer cultural productions, this course examines continuities and conflicts in aesthetics, issues, materials, and motivations for queer culture.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**WGST 2980 Special Topics In Women's And Gender Studies**

[3 credit hours]

Study of selected topics relevant to Women's and Gender Studies. May be repeated for major or minor credit when topic varies.

**Term Offered:** Spring, Summer, Fall**WGST 3010 Global Issues In Women's Studies**

[3 credit hours]

Required for the major. An interdisciplinary introduction to basic works of feminist thought, feminist methodologies and current issues in the field world-wide. Writing Intensive (WAC) course.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**WGST 3030 Women and the Body**

[3 credit hours]

This class will look at the complexities of women's relationships to their bodies and how the intersectionalities of race, gender identity, sexuality and societal pressures help shape the ways women feel about themselves. Using popular culture, feminist theory, and other mediums, this class expects students to participate in self-reflection, critical analysis, and the application of various feminist theories to their work.

**Prerequisites:** WGST 2010 with a minimum grade of D- Multicultural US Diversity**WGST 3080 Women In Poverty**

[3 credit hours]

Provides an understanding of women's poverty and its perpetuation through marriage and divorce, women's work and wages, welfare, children, child support and the economics of the unpaid women's labor.

**Term Offered:** Spring, Summer, Fall**WGST 3100 Globally Queer**

[3 credit hours]

This course will survey the experiences of queer individuals and communities around the globe from a human rights perspective.

**Term Offered:** Spring

Multicultural Non-US Diversity

**WGST 3150 Proseminar in Women's & Gender Studies**

[3 credit hours]

Designed for WGST majors & minors. Students reflect on the academic, professional and community activist/engagement dimensions of Women's and Gender Studies. Special emphasis is dedicated to the completion of a portfolio for future career opportunities, community activism/engagement, and graduate studies.

**Term Offered:** Fall**WGST 3200 Issues In Lesbian, Transgender, Bisexual And Gay Communities**

[3 credit hours]

This course will explore current issues facing diverse LTBGQ communities including historical, socio-cultural and political perspectives.

**Term Offered:** Fall**WGST 3510 Interpersonal Practice with Lesbian, Gay, Bisexual, Transgender and Queer Individuals**

[3 credit hours]

This course will provide an introduction and overview of sexual orientation and gender identity and expand understanding of how to implement affirmative models of practice with LGBTQ individuals, families and communities. Course content will include: perspectives on gender, identity formation, impact of homophobia, biphobia, and transphobia, affirming interventions with lesbian, gay, bisexual and transgendered persons, families, youth, communities and aging; and specific challenges facing the LGBT communities such as homelessness, domestic violence, bullying, and policy.

**Term Offered:** Spring, Summer, Fall

**WGST 3550 Feminism And Philosophy: Love, Sex and Marriage**

[3 credit hours]

This course examines a number of cross-cultural philosophical conceptions of love, sex, and marriage, comparing historical and contemporary beliefs and practices in relation to gender/feminist and ethical theory. A number of philosophical and ethical issues, such as monogamy, cultural and theological contexts, pornography, marriage rights, and consent, will be investigated through readings, videos, and discussion boards, which are meant to encourage students to explore diverse viewpoints, analyze arguments, and cultivate a deeper critical awareness of their own and others' viewpoints.

**Term Offered:** Spring, Summer

Multicultural US Diversity

**WGST 3600 Feminist Health Humanities**

[3 credit hours]

This 15-week course will be taught from intersectional, feminist, health humanities perspectives. We will use the arts and culture in combination with humanistic social theory, to examine the following: gendered and racialized health disparities; gendered and racial constructions in the history of science/medicine; illness and disability life writing; biomedical ethics; the feminist health movement; grassroots community health organizing and feminist conceptualizations of wellbeing and radical self-care. Throughout the semester, there will be a sustained emphasis on health justice and the experiences of marginalized communities (women, people of color, the LGBTQ community, people with disabilities, etc.). Participants will leave the course more aware of important discussions in the health humanities and more fully prepared to apply inclusive knowledge practices within majors and career paths involving "health" – broadly defined. The course fulfills core curriculum requirements for Multicultural U.S. Diversity & Writing Across the Curriculum (WAC).

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**WGST 3650 Economics Of Gender**

[3 credit hours]

Analysis of labor market outcomes and income distribution characteristics resulting from gender differences; gender-related economic outcomes: the "feminization of poverty," persistent male-female wage differential, expanding proportions of female-headed and same sex households.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**WGST 3700 Women's Studies Topics In Literature**

[3 credit hours]

Specific topics vary. Check schedule of classes for specific subject.

**Term Offered:** Spring, Fall**WGST 3750 Women And Literature - Writing Across the Curriculum**

[3 credit hours]

Examines literary works in light of major issues raised by feminist criticism. Specific emphasis varies. Recommended ENGL 2700 or 3790

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**WGST 3800 Sexual Politics**

[3 credit hours]

This course examines sexual politics through studying canonical literature of Western political theory, feminism and postmodern theory.

**Term Offered:** Spring, Fall**WGST 3980 Topics In Women's Studies**

[3 credit hours]

Specific topics vary. Check schedule of courses for specific subject.

**Term Offered:** Spring, Summer, Fall**WGST 4010 Women's Studies Topics In Film**

[3 credit hours]

Specific topics vary. Check schedule of courses for specific subject and prerequisites.

**Term Offered:** Spring, Fall**WGST 4110 Disability and Sexuality**

[3 credit hours]

Utilizing a cultural studies approach, this course investigates complex questions of how someone becomes understood as abnormal in contemporary culture. The course looks at the disability justice and LGBTQA+ justice; trans studies and disability studies; public health and private rights. The course uses interdisciplinary texts including memoir and life writing, philosophy, history, public health and sexuality studies to address questions central to disability justice and lived experience.

**Term Offered:** Spring, Fall**WGST 4160 Health And Gender**

[3 credit hours]

An examination of gender as a predisposing factor of health status, health behavior, health care delivery, and the structure and posture of health care professionals. Writing intensive (WAC) course.

**WGST 4190 Gender In Cross-Cultural Perspective**

[3 credit hours]

Analysis of gender stratification and its impact on culture in various nations and across ethnic groups in the United States.

Multicultural Non-US Diversity

**WGST 4350 Women's Studies Topics In Communication**

[3 credit hours]

Cross-listings of 4000-level courses with the communication department. Specific topics vary. Check schedule of courses for specific subject and prerequisites determined by the department of communication.

**Term Offered:** Spring, Summer, Fall**WGST 4500 Women's Studies Topics In History**

[3 credit hours]

Crosslistings of 4000 level courses with the history department.

Specific topics vary. Check schedule of courses for specific subject and prerequisites.

**Term Offered:** Spring, Fall**WGST 4510 Women In American History**

[3 credit hours]

This course presents American history from early settlement to the present by examining the contributions of women, in interaction with men, to the immensely complex fabric of American life.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**WGST 4540 Witchcraft And Magic In Medieval And Early Modern Europe**

[3 credit hours]

Witchcraft, religion and magic in western Europe from the 12th through 17th centuries, focusing on the origins of witchcraft belief, diabolical magic, the witchcraft and its decline.

**Term Offered:** Spring

**WGST 4590 Law, Policy And The Politics of Sexuality**

[3 credit hours]

This course explores the public policies that affect the lesbian, gay, bisexual and transgender communities in the United States and in other countries. It examines the factors that affect policymaking in this area.

**Term Offered:** Spring, Fall**WGST 4700 Women's Studies Topics In Literature**

[3 credit hours]

Specific topics vary. Check Course Schedules for specific subject.

**Term Offered:** Spring**WGST 4770 American Women Writers**

[3 credit hours]

Author/authors vary with each offering. Consult schedule of courses for specific subject. Recommended ENGL 2700, 2800 or 3790.

**WGST 4810 Women's Health Care**

[3 credit hours]

The course is designed to consider personal health topics of special interest and applicability to women. The focus is upon the role of self-understanding and self-help in promotion of health and well-being.

**Term Offered:** Spring, Summer, Fall**WGST 4870 Feminisms**

[3 credit hours]

This introduction to global feminist thought familiarizes students with feminist terminology and a variety of feminist theoretical frameworks.

**Term Offered:** Spring, Fall**WGST 4880 Queer Theory WAC**

[3 credit hours]

This course explores the theoretical concepts/texts of Queer Theory and its locations in communities and identities, focusing principally on the theories that have emerged since the late 1990s.

**Prerequisites:** WGST 3010 with a minimum grade of D- or WGST 2010 with a minimum grade of D-

**Term Offered:** Spring

Multicultural US Diversity

**WGST 4890 Research and Methods in Women's and Gender Studies**

[3 credit hours]

This course will present an overview of the ways in which women's/gender/feminist studies have informed and complicated traditional theories of research and methodologies. Students will examine and use various research methods and tools to prepare a final research project.

**Term Offered:** Fall**WGST 4900 Seminar In Women's Studies**

[3 credit hours]

Seminar focused on timely topics in Women's Studies chosen by rotating faculty.

**Term Offered:** Spring, Summer**WGST 4910 Honors Thesis In Women's And Gender Studies**

[1-3 credit hours]

Supervised research and writing for honors students only.

**Term Offered:** Spring, Summer, Fall**WGST 4940 Internship In Women's Studies**

[1-3 credit hours]

Practical field experience applying Women's Studies theories, arranged in conjunction with the department of women's and gender studies. Students must have pre-approval based on detailed written proposal.

**Term Offered:** Spring, Summer, Fall**WGST 4980 Advanced Topics In Women's Studies**

[3 credit hours]

A course on a special topic in Women's Studies. Consult schedule of courses for topic to be studied and semester offered. Recommended WGST 3010.

**Term Offered:** Spring, Fall**WGST 4990 Independent Study In Women's Studies**

[1-4 credit hours]

Supervised independent reading and research on selected topics. Before the end of open registration, students must present the supervising instructor a detailed written proposal and get written approval.

**Term Offered:** Spring, Summer, Fall**Departmental Honors**

A student majoring in Women's and Gender Studies who is seeking departmental honors should make formal application near the end of the junior year. The following requirements must be met in order to earn the departmental honors designation at the time of graduation:

1. minimum cumulative GPA of 3.3 overall and 3.5 in WGST courses,
2. Two WGST 3000-4000-level elective courses and
3. WGST 4910 Thesis for three hours, an honors thesis, or a paper from a 4000-level class submitted for review by the department honors committee.

## B.A. in Women's and Gender Studies

- Women's and Gender Studies, B.A. Requirements
- Women's and Gender Studies -Sexualities Studies Concentration, B.A. Requirements

### Women's and Gender Studies, B.A. Requirements

Major, B. A. 33 hours (30 hours if double-major)

Code	Title	Hours
<b>Core Requirements</b>		
WGST 3150	Proseminar in Women's & Gender Studies	3
WGST 3010	Global Issues In Women's Studies	3
WGST 4870	Feminisms (Feminist Theory)	3
WGST 4890	Research and Methods in Women's and Gender Studies	3
WGST 4900	Seminar In Women's Studies	3
WGST 4940	Internship In Women's Studies	3
<b>Electives</b>		
Select 15 hours <sup>1</sup>		15
<b>Total Hours</b>		<b>33</b>

<sup>1</sup> Students for whom WGST is a second major are required to take only 12 hours of electives. All cross-listed WGST classes or courses with

WGST numbers (that are not core-classes) count as WGST electives. In some cases, where relevant, courses with other department alpha-codes may count as electives at the discretion of the adviser or chair.

### Women's and Gender Studies -Sexualities Studies Concentration, B.A. Requirements

Women's and Gender Studies, B.A. -Sexualities Studies Concentration requirements:

Code	Title	Hours
WGST 3150	Proseminar in Women's & Gender Studies	3
WGST 3010	Global Issues In Women's Studies	3
WGST 4870	Feminisms	3
WGST 4890	Research and Methods in Women's and Gender Studies	3
WGST 4900	Seminar In Women's Studies	3
WGST 4940	Internship In Women's Studies	3

#### Sexualities Studies Concentration Requirements

WGST 2010	Introduction To Gender Studies: Gender, Sex And Difference	3
Electives - Select 9 hours		9
WGST 2880	Contemporary U.S. Queer Cultures	
WGST 3100	Globally Queer	
WGST 3200	Issues In Lesbian, Transgender, Bisexual And Gay Communities	
WGST 3510	Interpersonal Practice with Lesbian, Gay, Bisexual, Transgender and Queer Individuals	
WGST 3550	Feminism And Philosophy: Love, Sex and Marriage	
WGST 3800	Sexual Politics	
WGST 4110	Disability and Sexuality	
WGST 4590	Law, Policy And The Politics of Sexuality	
WGST 4880	Queer Theory WAC	

- Women's and Gender Studies, B.A. Requirements (p. 166)
- Women's and Gender Studies -Sexualities Studies Concentration, B.A. Requirements (p. 167)

### Women's and Gender Studies, B.A. Requirements

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
WGST 2010	Introduction To Gender Studies: Gender, Sex And Difference	3
Elementary Foreign Language I		4
MATH 1180	Reasoning With Mathematics	3
Social Sciences Core		3
<b>Hours</b>		<b>17</b>

#### Second Term

WGST 2400	Women's Roles: A Global Perspective	3
Elementary Foreign Language II		4

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HIST 1010-1200 Arts/Humanities Core (History)		3
Natural Sciences Core		3
<b>Hours</b>		<b>16</b>

#### Third Term

WGST 3010	Global Issues In Women's Studies	3
Intermediate Foreign Language I		3
Arts/Humanities Core (Fine Art)		3
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1

**Hours 16**

#### Fourth Term

WGST Major Elective		3
WGST Major Elective		3
Intermediate Foreign Language II		3
SOC 1010	Introduction To Sociology (Social Sciences Core)	3
Arts/Humanities Core		3

**Hours 15**

#### Fifth Term

WGST 3150	Proseminar in Women's & Gender Studies	3
WGST 4890	Research and Methods in Women's and Gender Studies	3
WGST Major Elective		3
Related or Minor course		3
Elective or Core Elective		3

**Hours 15**

#### Sixth Term

WGST 4870	Feminisms	3
WGST 4810	Women's Health Care	3
Related or Minor course		3
Elective		6

**Hours 15**

#### Seventh Term

WGST 4900	Seminar In Women's Studies	3
Related or Minor course		3
Elective		9

**Hours 15**

#### Eighth Term

WGST 4940	Internship In Women's Studies	3
Related or Minor course		3
Elective		9

**Hours 15**

**Total Hours 124**



## Women's and Gender Studies -Sexualities Studies Concentration, B.A. Requirements

Below is a sample plan of study for the Women's and Gender Studies, B.A. -Sexualities Studies Concentration. Consult your degree audit for your program requirements.

First Term		Hours
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
WGST 2010	Introduction To Gender Studies: Gender, Sex And Difference	3
Elementary Foreign Language I		4
MATH 1180	Reasoning With Mathematics	3
Social Sciences Core		3
<b>Hours</b>		<b>17</b>
Second Term		Hours
Elementary Foreign Language II		4
WGST 3550	Feminism And Philosophy: Love, Sex and Marriage	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HIST 1010-1200 Arts/Humanities Core (History)		3
Natural Sciences Core		3
<b>Hours</b>		<b>16</b>
Third Term		Hours
Intermediate Foreign Language I		3
Arts/Humanities Core (Fine Art)		3
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
WGST 3150	Proseminar in Women's & Gender Studies	3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>16</b>
Fourth Term		Hours
Intermediate Foreign Language II		3
SOC 1010	Introduction To Sociology (Social Sciences Core)	3
WGST 3010	Global Issues In Women's Studies	3
WGST 3200	Issues In Lesbian, Transgender, Bisexual And Gay Communities	3
WGST 2020	Girlhood and Adolescence	3
<b>Hours</b>		<b>15</b>
Fifth Term		Hours
WGST 3150	Proseminar in Women's & Gender Studies	3
WGST 4890	Research and Methods in Women's and Gender Studies	3
Related or Minor course		3
WGST 3800	Sexual Politics	3
WGST 3510	Interpersonal Practice with Lesbian, Gay, Bisexual, Transgender and Queer Individuals	3
<b>Hours</b>		<b>15</b>

Sixth Term		Hours
WGST 4870	Feminisms	3
WGST 4810	Women's Health Care	3
Related or Minor course		3
Elective		3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
Seventh Term		Hours
WGST 4900	Seminar In Women's Studies	3
WGST 4590	Law, Policy And The Politics of Sexuality	3
Related or Minor course		3
Elective		6
<b>Hours</b>		<b>15</b>
Eighth Term		Hours
WGST 4940	Internship In Women's Studies	3
Related or Minor course		3
Elective		9
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>124</b>

- Students will be able to demonstrate their knowledge of key issues and debates in the field of Women's Gender Studies.
- Students will be able to demonstrate their knowledge of intersectional diversity in both US and global contexts.
- Students will be able to communicate complex ideas through written assignments.
- Students will be able to demonstrate an ability to utilize interdisciplinary strategies in research.
- Student will be able to produce evidence of informal and formal outreach and engagement experiences.

## Minor in Sexualities Studies

To complete the minor in Sexualities Studies, students must maintain a minimum GPA of 2.0 in the minor field, and complete 18 credits of coursework—9 of required core courses and 9 from a broad list of elective courses, subject to approval by the student's adviser and department chair.

Code	Title	Hours
<b>Required Core</b>		
WGST 2010	Introduction To Gender Studies: Gender, Sex And Difference	3
WGST 4890	Research and Methods in Women's and Gender Studies	3
WGST 4870 or WGST 4880	Feminisms Queer Theory WAC	3
<b>Electives</b>		
Select 9 hours of the following:		9
WGST 2880	Contemporary U.S. Queer Cultures	
WGST 3200	Issues In Lesbian, Transgender, Bisexual And Gay Communities	
WGST 3550	Feminism And Philosophy: Love, Sex and Marriage	



WGST 3600	Feminist Health Humanities
WGST 3800	Sexual Politics
WGST 4590	Law, Policy And The Politics of Sexuality
<b>Total Hours</b>	<b>18</b>

<sup>1</sup> Only one of these may count as an elective. The other will be counted as part of the core requirements.

- PLO 1. Students will be able to demonstrate their knowledge of key issues and debates in the field of Women’s, Gender, and Sexualities Studies.
- PLO 2. Students will be able to demonstrate their knowledge of intersectional diversity in US contexts.
- PLO 3. Students will be able to communicate complex ideas through written assignments.
- PLO 4. Students will be able to demonstrate an ability to utilize interdisciplinary strategies in research.
- PLO 5. Students will be able to produce evidence of informal and formal outreach and engagement experiences.
- PLO 6. Students will be able to demonstrate their knowledge of intersectional diversity in global contexts
- SLO 1 Students will be able to demonstrate their knowledge of key issues and debates in the field of Women’s, Gender, and Sexualities Studies.
- SLO 2. Students will be able to demonstrate their knowledge of intersectional diversity in US contexts.
- SLO 3 Students will be able to communicate complex ideas through written assignments.
- SLO 4 Students will be able to demonstrate an ability to utilize interdisciplinary strategies in research.
- SLO 5 Students will be able to produce evidence of informal and formal outreach and engagement experiences.
- SLO 6 Students will be able to demonstrate their knowledge of intersectional diversity in global contexts.

## Minor in Women’s and Gender Studies

Minor in Women’s and Gender Studies: 21 hours

Code	Title	Hours
<b>Core Requirements</b>		
WGST 2150		3
WGST 3010	Global Issues In Women’s Studies	3
WGST 4870	Feminisms (Feminist Theory)	3
WGST 4890	Research and Methods in Women’s and Gender Studies	3
<b>Electives</b>		
Select 9 hours of elective courses <sup>1</sup>		9
<b>Total Hours</b>		<b>21</b>

<sup>1</sup> All cross-listed WGST classes or courses with WGST numbers (that are not core-classes) count as WGST electives. In some cases, where

relevant, courses with other department alpha-codes may count as electives at the discretion of the adviser or chair.

- PLO 1. Students will be able to demonstrate their knowledge of key issues and debates in the field of Women’s and Gender Studies.
- PLO 2. Students will be able to demonstrate their knowledge of intersectional diversity in US contexts.
- PLO 3. Students will be able to communicate complex ideas through written assignments.
- PLO 4. Students will be able to demonstrate an ability to utilize interdisciplinary strategies in research.
- PLO 5. Students will be able to produce evidence of informal and formal outreach and engagement experiences.
- PLO 6. Students will be able to demonstrate their knowledge of intersectional diversity in global contexts.

## Department of World Languages and Cultures

### CONTACTS

An Chung Cheng, Chair  
 Friederike Emonds, Undergraduate Advisor for Minors, German  
 Kasumi Yamazaki , Undergraduate Advisor for Minors, Japanese  
 Juan Martin, Undergraduate Advisor for Majors and Minors, Spanish (A-H)  
 Linda Rouillard, Undergraduate Advisor for Minors, French  
 Gaby Semaan, Undergraduate Advisor for Minors, Arabic  
 Kathleen Thompson-Casado, Undergraduate Advisor for Majors and Minors, Spanish (I-Z)

**Degrees Offered:** The Department of World Languages and Cultures offers a bachelor of arts degree in Spanish and in Middle East Studies.

**The Department of World Languages and Cultures offers instruction in the following languages:**

- Arabic
- Chinese
- French
- German
- Japanese
- Spanish

A major can be earned in the area of Spanish; Departmental Honors can also be pursued in these areas. A Minor can be earned in Spanish, French, German, Arabic, and Japanese.

### Advanced Placement Program

Refer to the University of Toledo’s Registrar page at [https://www.utoledo.edu/offices/registrar/student\\_records/advan\\_credits.html](https://www.utoledo.edu/offices/registrar/student_records/advan_credits.html) for specific information on minimum scores and credits awarded for Advanced Placement examinations administered by the College Board Advanced Placement Program.



## Study Abroad

Credit for foreign language study abroad will be given only for those accredited courses or programs approved in advance. Students should apply for approval at the Department of World Languages and Cultures at least one month prior to the anticipated date of departure. Credit will be granted only upon presentation of a formal certificate indicating the hours completed and examinations passed.

## Degrees Offered

- B.A. in Spanish (p. 178)
- Certificate in Intercultural Competency (p. 179)
- Certificate in Issues in Second Language Teaching (p. 180)
- Certificate in Spanish Translation and Interpretation (p. 180)
- Certificate in World Language Proficiency (p. 180)
- Minor in Applied German (p. 180)
- Minor in Arabic (p. 181)
- Minor in French (p. 181)
- Minor in General German (p. 182)
- Minor in Japanese (p. 182)
- Minor in Language and Linguistics (p. 183)
- Minor in Spanish (p. 183)
- Minor in World Cultures (p. 184)

### ARBC 1080 Culture and Commerce in the Arabic-Speaking World

[3 credit hours]

A study of the culture and society of the Arabic-speaking world with emphasis on business and economics. Taught in English.

**Term Offered:** Spring

Core Arts & Humanities, Multicultural Non-US Diversity

### ARBC 1090 Culture of the Arabic-Speaking World

[3 credit hours]

An introduction to principal social, artistic, and literary aspect of modern culture in the Arabic-speaking worlds. Taught in English.

**Term Offered:** Fall

Core Arts & Humanities, Multicultural Non-US Diversity

### ARBC 1110 Elementary Arabic I

[4 credit hours]

An introduction to Arabic Language and culture through listening, speaking, reading and writing. Laboratory practice required.

**Term Offered:** Fall

### ARBC 1120 Elementary Arabic II

[4 credit hours]

An introduction to Arabic language and culture through listening, speaking, reading and writing. Laboratory practice required.

**Prerequisites:** ARBC 1110 with a minimum grade of D-

**Term Offered:** Spring

Core Arts & Humanities

### ARBC 2140 Intermediate Arabic I

[3 credit hours]

Further practice of the four language skills with grammar building and readings of a literary-cultural nature.

**Prerequisites:** ARBC 1120 with a minimum grade of D-

**Term Offered:** Spring, Fall

Core Arts & Humanities

### ARBC 2150 Intermediate Arabic II

[3 credit hours]

Further practice of the four language skills with grammar building and readings of a literary-cultural nature.

**Prerequisites:** ARBC 2140 with a minimum grade of D-

**Term Offered:** Spring, Fall

Core Arts & Humanities

### ARBC 3010 Conversation and Composition I

[3 credit hours]

Work on advanced listening, speaking, reading, and writing skills through intensive work with authentic texts that deal contemporary issues relating to the Arabic-speaking world.

**Prerequisites:** ARBC 2150 with a minimum grade of D-

**Term Offered:** Fall

### ARBC 3020 Conversation and Composition II

[3 credit hours]

Work on advanced listening, speaking, reading, and writing skills through intensive work with authentic texts that deal contemporary issues relating to the Arabic-speaking world.

**Prerequisites:** ARBC 3010 with a minimum grade of D-

**Term Offered:** Spring

### ARBC 3410 Survey of Arabic Civilization I

[3 credit hours]

The course examines the Arabic culture and civilization from Arabic authors' literature published in English as well as in Arabic and compares that to Western thought and expression.

**Prerequisites:** ARBC 3020 with a minimum grade of D-

**Term Offered:** Fall

### ARBC 3420 Survey of Arabic Civilization II

[3 credit hours]

This course further the students' knowledge of the Arabic civilization through examining the ways of thinking and social contexts as expected in literary works and poetry from different eras.

**Prerequisites:** ARBC 3020 with a minimum grade of D-

**Term Offered:** Spring

### ARBC 3980 Special Topics in Arabic

[1-3 credit hours]

Study of a selected topic in Arabic language, literature or culture. May be repeated when topic varies.

**Prerequisites:** ARBC 3010 with a minimum grade of D- and ARBC 3020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ARBC 4010 Arabic Syntax and Stylistics I**

[3 credit hours]

It provides thorough intensive work with authentic texts that allows further study of syntax, morphology and complex grammatical structure of Arabic and the relationship between aural/oral aspects of the language.

**Prerequisites:** ARBC 3020 with a minimum grade of D-**Term Offered:** Fall**ARBC 4020 Arabic Syntax and Stylistics II**

[3 credit hours]

It provides thorough intensive work with authentic texts that allows further study of syntax, morphology and complex grammatical structure of Arabic and the relationship between aural/oral aspects of the language.

**Prerequisites:** ARBC 4010 with a minimum grade of D-**Term Offered:** Spring**ARBC 4980 Special Topics in Arabic**

[1-3 credit hours]

Study of a selected topic in Arabic language, literature or culture. May be repeated when topic varies.

**Prerequisites:** ARBC 3010 with a minimum grade of D- and ARBC 3020 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**CHIN 1090 Chinese Culture**

[3 credit hours]

Through a systematic study of Chinese values and patterns of behaviors, this course builds students' proficiency in cultural competence of Chinese. This course is taught in English.

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity

**CHIN 1110 Elementary Chinese I**

[4 credit hours]

An introduction to Chinese language and culture through listening, speaking, reading and writing. Laboratory practice required.

**Term Offered:** Fall**CHIN 1120 Elementary Chinese II**

[4 credit hours]

An introduction to Chinese language and culture through listening, speaking, reading and writing. Laboratory practice required. Prerequisite: CHIN 1110 or satisfactory score on placement test.

**Prerequisites:** CHIN 1110 with a minimum grade of D-**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**CHIN 2140 Intermediate Chinese I**

[3 credit hours]

**CHIN 2150 Intermediate Chinese II**

[3 credit hours]

**CHIN 3980 Special topics in Chinese**

[0-6 credit hours]

Study of a selected topic in Chinese language, literature or culture. May be repeated when topic varies.

**FLAN 1970 Special Topics**

[4 credit hours]

Special topics which vary semester to semester. Course may be repeated when topic varies.

**Term Offered:** Spring, Fall**FLAN 1980 Special Topics**

[4 credit hours]

Special topics which vary semester to semester. Course may be repeated when topic varies.

**Term Offered:** Spring, Fall**FLAN 2700 World Cultures through Literature and Cinema in Translation**

[3 credit hours]

This course introduces students to World Cultures through selected translated texts and films from various European, Latin American, African, Asian, and Middle East cultures. Among the themes considered are race, gender, class, immigration, and colonialism. Taught in English. 3 credit hours.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity

**FLAN 2970 Special Topics**

[3 credit hours]

Special topics which vary semester to semester. Course may be repeated when topic varies.

**Term Offered:** Spring, Fall**FLAN 2980 Special Topics**

[3 credit hours]

Special topics which vary semester to semester. Course may be repeated when topic varies.

**Term Offered:** Spring, Fall**FLAN 3440 Intercultural Communication: Principles And Practice**

[4 credit hours]

This course offers a survey of major concepts in intercultural communication. It emphasizes a balance between theoretical and practical learning opportunities and seeks to promote intercultural understanding.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**FLAN 3980 Special Topics in Foreign Languages**

[0-6 credit hours]

Study of a selected topic in language, literature, or culture.

**Term Offered:** Spring, Summer, Fall**FLAN 4160 Teaching Colloquia**

[3 credit hours]

A course in the theory of second language acquisition and practice of teaching foreign / second languages in general.

**Term Offered:** Spring, Summer, Fall**FLAN 4940 Internship in Foreign Languages**

[0-12 credit hours]

Educational work experience in a pre-approved professional field.

**Term Offered:** Spring, Fall**FLAN 4980 Special Topics in Foreign Languages**

[0-6 credit hours]

Study of a selected topic in foreign languages. May be repeated when topic varies.

**Term Offered:** Spring, Summer, Fall

**FLAN 4990 Independent Study in World Languages and Cultures**

[3 credit hours]

Independent study of a selected topic in foreign languages, developed in consultation with a faculty member. 3 hours. May be repeated with a different topic.

**Term Offered:** Spring, Summer, Fall**FREN 1080 Culture And Commerce In The French-Speaking World**

[3 credit hours]

A study of the French-speaking world with emphasis on the relationship between its culture and its business and economic institutions and practices. Taught in English. (Not for major credit.)

**Term Offered:** Fall

Core Arts &amp; Humanities

**FREN 1090 French & Francophone Culture In The Modern World**

[3 credit hours]

This course focuses on modern French and Francophone culture and their historical and geographical sources. Taught in English. (Not for major credit.)

**Term Offered:** Spring

Core Arts &amp; Humanities

**FREN 1110 Elementary French I**

[4 credit hours]

A comprehensive introductory course in French language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (not for major credit)

**Term Offered:** Spring, Fall**FREN 1120 Elementary French II**

[4 credit hours]

A comprehensive introductory course in French language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (not for major credit)

**Prerequisites:** FREN 1110 with a minimum grade of D- or French Language Placement with a score of 1120**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**FREN 2140 Intermediate French I**

[3 credit hours]

Review and further development of command of the French language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (not for major credit)

**Prerequisites:** FREN 1120 with a minimum grade of D- or FREN 1500 with a minimum grade of D- or French Language Placement with a score of 2140**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**FREN 2150 Intermediate French II**

[3 credit hours]

Further review and development of command of the French language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (not for major credit)

**Prerequisites:** FREN 2140 with a minimum grade of D- or French Language Placement with a score of 2150**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**FREN 3010 Conversation And Composition I**

[3 credit hours]

Idiomatic conversation practice, dictation and pronunciation drill as well as development of practical writing skills.

**Prerequisites:** FREN 2150 with a minimum grade of D- or French Language Placement with a score of 3000**Term Offered:** Fall**FREN 3020 Conversation And Composition II**

[3 credit hours]

Further aural/oral development with emphasis on the mechanics of writing in French and the organization of ideas. A writing-intensive course.

**Prerequisites:** FREN 3010 with a minimum grade of D-**Term Offered:** Spring**FREN 3170 Business French**

[3 credit hours]

An introduction to the language of the French-speaking world, with emphasis on business and commerce.

**Prerequisites:** FREN 2150 with a minimum grade of D-**FREN 3210 Selected French and Francophone Readings I**

[3 credit hours]

Selected French and Francophone short stories and novels.

**Prerequisites:** FREN 2150 with a minimum grade of D-**Term Offered:** Fall**FREN 3220 Selected French and Francophone Prose and Poetry, Readings II**

[3 credit hours]

French and Francophone readings taken from drama, poetry, and prose of 19th and 20th centuries.

**Prerequisites:** FREN 2150 with a minimum grade of D-**Term Offered:** Spring**FREN 3400 Cross-Cultural Understanding**

[3 credit hours]

An examination of the notions of culture, multiculturalism and Francophone cultures. Course content emphasizes issues of race, class and gender in U.S. and Francophone contexts.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**FREN 3410 Survey Of French Civilization I**

[3 credit hours]

A study of the many ways in which France has contributed to world culture through architecture, painting, sculpture, music, literature, folklore, science, philosophy and education.

**Prerequisites:** FREN 2150 with a minimum grade of D-**Term Offered:** Spring, Fall**FREN 3420 Survey Of French And Francophone Civilization II**

[3 credit hours]

An introductory study of selected sociological, political, cultural and economic issues of contemporary France and Francophone areas.

**Prerequisites:** FREN 2150 with a minimum grade of D-**Term Offered:** Spring

**FREN 3980 Special Topics in French Studies**

[0-6 credit hours]

Study of a selected topic in French language, literature or culture. May be repeated when topic varies.

**Term Offered:** Spring, Fall**FREN 4010 Advanced Study of French Language I**

[3 credit hours]

A thorough study of syntax, morphology, grammar, and stylistics of French. Emphasizes various writing activities and styles.

**Prerequisites:** FREN 3020 with a minimum grade of D-**Term Offered:** Fall**FREN 4020 Advanced Study of French Language II**

[3 credit hours]

Continuing advanced study of syntax, morphology, grammar, and stylistics of French. Emphasizes various writing activities and styles.

**Prerequisites:** FREN 3010 with a minimum grade of D- and FREN 3020 with a minimum grade of D-**Term Offered:** Spring**FREN 4050 Advanced Conversation**

[3 credit hours]

Advanced practice in speaking idiomatic French. Special attention to problems of pronunciation and oral proficiency.

**Prerequisites:** FREN 3020 with a minimum grade of D-**Term Offered:** Spring, Fall**FREN 4070 French Translation**

[3 credit hours]

Practice in translation of texts from French into English and English into French. Subject matter area will include commerce, natural, physical, and social sciences and the humanities.

**FREN 4160 Teaching Colloquia**

[3 credit hours]

A course in the theory of second language acquisition and practice of teaching foreign / second languages in general.

**Term Offered:** Spring, Summer, Fall**FREN 4940 Internship in French**

[0-12 credit hours]

Educational work experience, using French, in a pre-approved professional field.

**FREN 4980 Special Topics In French Studies**

[1-3 credit hours]

Study of a selected topic in French or Francophone language, literature, or culture. May be repeated when topic varies.

**Term Offered:** Spring, Summer, Fall**FREN 4990 Independent Study In French**

[1-3 credit hours]

Independent research in special topics. May be repeated once for additional credit.

**GERM 1080 German Culture And Commerce**

[3 credit hours]

Study of German culture and society with emphasis on business and economics. Taught in English. (Not for major credit.)

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**GERM 1090 Introduction To Modern German Culture**

[3 credit hours]

An introduction to principal social, artistic and literary aspects of modern German culture. Taught in English. (Not for major credit.)

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**GERM 1110 Elementary German I**

[4 credit hours]

An introduction to German language and culture through listening, speaking, reading and writing. Laboratory practice required.

**Term Offered:** Spring, Fall**GERM 1120 Elementary German II**

[4 credit hours]

An introduction to German language and culture through listening, speaking, reading and writing. Laboratory practice required.

**Prerequisites:** GERM 1110 with a minimum grade of D- or German Language Placement with a score of 1120**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**GERM 2140 Intermediate German I**

[3 credit hours]

Practice of the four language skills with grammar review and readings of a literary-cultural nature. Laboratory practice required. (not for major credit)

**Prerequisites:** GERM 1120 with a minimum grade of D- or GERM 1500 with a minimum grade of D- or German Language Placement with a score of 2140**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**GERM 2150 Intermediate German II**

[3 credit hours]

Further practice of the four language skills with grammar review and readings of a literary-cultural nature. Laboratory practice required. (Not for major credit)

**Prerequisites:** GERM 2140 with a minimum grade of D- or German Language Placement with a score of 2150**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**GERM 2980 Special Topics in German Studies**

[0-6 credit hours]

Study of a selected topic in German language, literature or culture. May be repeated when topic varies.

**GERM 3010 Conversation And Composition I**

[3 credit hours]

Work on advanced listening, speaking, reading and writing skills through intensive work with authentic texts that deal with contemporary issues relating to the German-speaking world.

**Prerequisites:** GERM 2150 with a minimum grade of D- or German Language Placement with a score of 3000**Term Offered:** Spring, Fall

**GERM 3020 Conversation And Composition II**

[3 credit hours]

Work on advanced speaking, listening, reading and writing skills through intensive work with authentic texts that deal with contemporary issues relating to the German-speaking world. A writing-intensive course.

**Prerequisites:** GERM 3010 with a minimum grade of D-

**Term Offered:** Spring, Fall

**GERM 3170 Business German**

[3 credit hours]

An introduction to the language and practices of German business and commerce.

**Prerequisites:** GERM 2150 with a minimum grade of D-

**GERM 3200 Survey Of German Literature**

[3 credit hours]

A survey of German literature from its origins to the present, with emphasis on literature after 1750.

**Prerequisites:** GERM 2150 with a minimum grade of D-

**Term Offered:** Spring, Fall

**GERM 3410 Survey Of German Civilization I**

[3 credit hours]

A study of different aspects of German culture and civilization such as fine arts, history, science and philosophy.

**Prerequisites:** GERM 2150 with a minimum grade of D-

**Term Offered:** Spring, Fall

**GERM 3420 Survey Of German Civilization II**

[3 credit hours]

A study of different aspects of German culture and civilization such as fine arts, history, science and philosophy.

**Prerequisites:** GERM 2150 with a minimum grade of D-

**Term Offered:** Spring, Fall

**GERM 3980 Special Topics in German Studies**

[0-6 credit hours]

Study of a selected topic in German language, literature, or culture. May be repeated for credit when topic varies.

**GERM 4010 German Syntax And Stylistics I**

[3 credit hours]

Refinement of conversation and composition skills through the analysis of texts and written and oral exercises.

**Prerequisites:** GERM 3020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**GERM 4020 Advanced Conversation And Composition II - WAC**

[4 credit hours]

A practical application of language skills in the preparation of a German-related project chosen, developed and presented by the student. A writing-intensive and capstone course.

**Prerequisites:** GERM 3020 with a minimum grade of D-

**Term Offered:** Spring, Summer

**GERM 4160 Teaching Colloquia**

[3 credit hours]

A course in the theory of second language acquisition and practice of teaching foreign / second languages in general.

**Term Offered:** Spring, Summer, Fall

**GERM 4200 German Culture And Civilization**

[3 credit hours]

Study of major trends and current developments in German Landeskunde. May be repeated when topic varies.

**GERM 4710 German Literature Of The 19th Century**

[3 credit hours]

Study of selected works by authors from B $\ddot{u}$ chner to Fontane.

**Term Offered:** Spring

**GERM 4720 German Romanticism**

[3 credit hours]

Study of Romantic writers of Germany such as Novalis, Eichendorff, E.T.A. Hoffmann and Bettina Brentano.

**GERM 4810 German Literature Of The 20th Century**

[3 credit hours]

Study of selected works by authors from the turn of the century to the present.

**Term Offered:** Spring, Fall

**GERM 4850 Genre Studies**

[3 credit hours]

Study of a selected literary or film genre, its development, and its influence on German culture. May be repeated for credit when topic varies.

**Term Offered:** Spring, Fall

**GERM 4870 German Literature In Translation**

[3 credit hours]

In-depth study of selected works of German literature in English translation. (Not for major credit).

**Term Offered:** Spring, Fall

**GERM 4910 Honors Research In German**

[3 credit hours]

Independent research in special topics. May be repeated once for additional credit.

**Term Offered:** Spring, Fall

**GERM 4980 Special Topics In German Studies**

[1-3 credit hours]

Study of a selected topic in German language, literature, or culture. May be repeated for credit when topic varies.

**Term Offered:** Spring, Summer, Fall

**GERM 4990 Independent Study In German**

[1-3 credit hours]

Independent research in special topics. May be repeated once for additional credit.

**Term Offered:** Spring, Fall

**JAPN 1080 Japanese Culture And Commerce**

[3 credit hours]

Study of Japanese culture and society with emphasis on business and economics. Taught in English. (not for major credit).

**Term Offered:** Summer

Core Arts & Humanities, Multicultural Non-US Diversity

**JAPN 1090 Introduction To Japanese Culture**

[3 credit hours]

An introduction to principal social, artistic and literary aspects of modern Japanese culture. Taught in English. (Not for major credit.)

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity

**JAPN 1110 Elementary Japanese I**

[4 credit hours]

An introduction to Japanese language and culture through aural comprehension, speaking, reading and writing. Laboratory practice required. (not for major credit)

**Term Offered:** Spring, Fall**JAPN 1120 Elementary Japanese II**

[4 credit hours]

An introduction to Japanese language and culture through listening, speaking, reading and writing. Laboratory practice required. (not for major credit)

**Prerequisites:** JAPN 1110 with a minimum grade of D- or Japanese Language Placement with a score of 1120**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**JAPN 2140 Intermediate Japanese I**

[3 credit hours]

Further practice of the four language skills with grammar review and readings of a literary-cultural nature. Laboratory practice required. (not for major credit)

**Prerequisites:** JAPN 1120 with a minimum grade of D- or Japanese Language Placement with a score of 2140**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**JAPN 2150 Intermediate Japanese II**

[3 credit hours]

Further practice of the four language skills with grammar review and readings of a literary-cultural nature. Laboratory practice required. (not for major credit)

**Prerequisites:** JAPN 2140 with a minimum grade of D- or Japanese Language Placement with a score of 2150**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**JAPN 2190 Study Abroad**

[1-3 credit hours]

The course permits beginning students of Japanese to spend time in a country where Japanese is spoken. Credit awarded in accordance with established departmental procedures.

**Prerequisites:** JAPN 2150 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**JAPN 3010 Conversation And Composition I**

[3 credit hours]

Work on advanced aural comprehension, speaking, reading and writing skills through intensive work with authentic texts dealing with contemporary issues relating to Japan. Laboratory practice required.

**Prerequisites:** JAPN 2150 with a minimum grade of D- or Japanese Language Placement with a score of 3000**Term Offered:** Fall**JAPN 3020 Conversation And Composition II**

[3 credit hours]

Further work on advanced aural comprehension, speaking, reading and writing skills through intensive work with authentic texts dealing with contemporary issues relating to Japan. Laboratory practice required. A writing-intensive course.

**Prerequisites:** JAPN 3010 with a minimum grade of D-**Term Offered:** Spring**JAPN 3170 Business Japanese**

[3 credit hours]

An introduction to the language and practices of Japanese business and commerce.

**Term Offered:** Spring, Fall**JAPN 3410 Survey Of Japanese Civilization I**

[3 credit hours]

A study of different aspects of Japanese culture and civilization such as fine arts, history, science and philosophy.

**Prerequisites:** JAPN 2150 with a minimum grade of D-**Term Offered:** Fall**JAPN 3980 Special Topics in Japanese Studies**

[0-6 credit hours]

Study of a selected topic in Japanese language, literature, or culture. May be repeated for credit when topic varies.

**JAPN 4010 Japanese Syntax And Stylistics I**

[3 credit hours]

A review of Japanese stylistic structures through the analysis of texts and written and oral exercises in Japanese.

**Prerequisites:** JAPN 3020 with a minimum grade of D-**Term Offered:** Fall**JAPN 4020 Japanese Syntax And Stylistics II**

[4 credit hours]

Further review of Japanese stylistic structures through the analysis of texts and written and oral exercises in Japanese. The course includes an introduction to Japanese calligraphy. A writing-intensive course.

**Prerequisites:** JAPN 4010 with a minimum grade of D-**Term Offered:** Spring**JAPN 4050 Advanced Conversation I**

[3 credit hours]

Practice in speaking idiomatic Japanese.

**Term Offered:** Fall**JAPN 4060 Advanced Conversation II**

[3 credit hours]

Continued practice in speaking idiomatic Japanese.

**Term Offered:** Spring**JAPN 4190 Study Abroad**

[1-12 credit hours]

The course permits the student minoring in Japanese to spend time in a country where Japanese is spoken. Credit awarded in accordance with established departmental procedures.

**Prerequisites:** JAPN 3020 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**JAPN 4940 Internship in Japanese**

[0-12 credit hours]

Educational work experience, using Japanese, in a pre-approved professional field.

**JAPN 4980 Special Topics In Japanese Studies**

[1-3 credit hours]

Study of a selected topic in Japanese language, literature, or culture. May be repeated for credit when topic varies.

**Term Offered:** Spring, Summer, Fall**JAPN 4990 Independent Study In Japanese**

[1-3 credit hours]

Independent research on special topics. May be repeated once for additional credit.

**Term Offered:** Spring, Summer, Fall**SPAN 1080 Culture & Commerce In The Spanish-Speaking World**

[3 credit hours]

A study of the Hispanic world with emphasis on the relationship between its culture and business and economic institutions and practices. Taught in English. (Not for major credit)

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**SPAN 1090 Culture Of Latin America**

[3 credit hours]

A study of selected artistic, literary, philosophical, political and social aspects of present day Latin American culture. Taught in English. (Not for major credit)

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity

**SPAN 1100 Culture Of Spain**

[3 credit hours]

A study of the events, people and movements that have formed Spain.

Taught in English. (Not for major credit)

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**SPAN 1110 Elementary Spanish I**

[4 credit hours]

Practice in using and understanding Spanish to develop listening, speaking, reading and writing skills. Pronunciation, grammar, vocabulary and cultural topics. Lab practice required. (Not for major credit)

**Term Offered:** Spring, Summer, Fall**SPAN 1120 Elementary Spanish II**

[4 credit hours]

A comprehensive introductory course in Spanish language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (Not for major credit)

**Prerequisites:** SPAN 1110 with a minimum grade of D- or Spanish Language Placement with a score of 1120**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**SPAN 2140 Intermediate Spanish I**

[3 credit hours]

Intermediate-level review and development of aural comprehension, speaking, reading and writing skills. Topics in the cultures of the Spanish-speaking world. Lab practice required. (Not for major credit)

**Prerequisites:** SPAN 1120 with a minimum grade of D- or SPAN 1500 with a minimum grade of D- or Spanish Language Placement with a score of 2140**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**SPAN 2150 Intermediate Spanish II**

[3 credit hours]

Further review and development of aural comprehension, speaking, reading and writing skills. Topics in the cultures of the Spanish-speaking world. Lab practice required. (Not for major credit)

**Prerequisites:** SPAN 2140 with a minimum grade of D- or Spanish Language Placement with a score of 2150**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**SPAN 2190 Study Abroad**

[1-3 credit hours]

Designed to permit and encourage non-majors to spend time in a country where Spanish is spoken. Credit will be given in accordance with established departmental procedures. (Not for major credit.)

**Term Offered:** Summer**SPAN 2980 Special Topics in Spanish Studies**

[0-6 credit hours]

Study of a selected topic in Spanish language, literature or culture. May be repeated when topic varies.

**Term Offered:** Spring**SPAN 3000 Spanish Grammar**

[3 credit hours]

A study of all Spanish grammatical aspects with special emphasis on those which present greater difficulty for the English speaker.

**Prerequisites:** SPAN 2150 with a minimum grade of D- or Spanish Language Placement with a score of 3000**Term Offered:** Spring, Fall**SPAN 3010 Conversation And Composition I**

[3 credit hours]

Practice in speaking, listening, reading and writing. Vocabulary and fluency building in Spanish with special emphasis on oral practice.

**Prerequisites:** SPAN 2150 with a minimum grade of D- or Spanish Language Placement with a score of 3000**Term Offered:** Spring, Fall**SPAN 3020 Conversation And Composition II**

[3 credit hours]

Practice in speaking, listening, reading and writing. Vocabulary and fluency building in Spanish with special emphasis on writing practice. A writing-intensive course.

**Prerequisites:** SPAN 2150 with a minimum grade of D- or Spanish Language Placement with a score of 3000**Term Offered:** Spring, Fall**SPAN 3170 Business Spanish**

[3 credit hours]

An introduction to the language of the Hispanic world peculiar to the areas of business and commerce.

**Prerequisites:** SPAN 2150 with a minimum grade of D-**Term Offered:** Fall**SPAN 3210 Survey Of Spanish Literature I**

[3 credit hours]

A survey of Spanish literature from its origins through the seventeenth century.

**Prerequisites:** SPAN 2150 with a minimum grade of D-**Term Offered:** Fall



**SPAN 3220 Survey Of Spanish Literature II**

[3 credit hours]

A survey of Spanish literature from the eighteenth century to the present.

**Prerequisites:** SPAN 2150 with a minimum grade of D-**Term Offered:** Spring**SPAN 3270 Survey Of Latin American Literature I**

[3 credit hours]

The literature of Latin America from the Colonial period to the end of the nineteenth century.

**Prerequisites:** SPAN 2150 with a minimum grade of D-**Term Offered:** Fall**SPAN 3280 Survey Of Latin American Literature II**

[3 credit hours]

The literature of Latin America from the beginning of the twentieth century to the present.

**Prerequisites:** SPAN 2150 with a minimum grade of D-**Term Offered:** Spring**SPAN 3410 Spanish Culture And Civilization**

[3 credit hours]

A study of the events, people and movements that have formed Spain. Attention is also given to the nation's contemporary life-style and culture.

**Prerequisites:** SPAN 2150 with a minimum grade of D-**Term Offered:** Spring**SPAN 3420 Latin American Civilization**

[3 credit hours]

A study of Latin America's contributions to world culture in such fields as architecture, painting, sculpture, music, literature, folklore, sciences, philosophy and education.

**Prerequisites:** SPAN 2150 with a minimum grade of D-**Term Offered:** Spring**SPAN 3980 Special Topics in Spanish Studies**

[0-6 credit hours]

Study of a selected topic within Spanish studies. May be repeated for credit when topic varies.

**SPAN 4000 Advanced Spanish Grammar**

[3 credit hours]

An advanced study of Spanish grammar in preparation for higher levels of study in the language and for its use in professional pursuits.

**Term Offered:** Spring, Fall**SPAN 4010 Syntax And Stylistics**

[4 credit hours]

A thorough study of the grammatical structure of Spanish with special attention to stylistic problems.

**Prerequisites:** (SPAN 3000 with a minimum grade of D- and SPAN 3010 with a minimum grade of D- and SPAN 3020 with a minimum grade of D-)**Term Offered:** Spring, Fall**SPAN 4060 Translation & Interpretation In Spanish**

[3 credit hours]

A study of the techniques of translation and interpretation as they relate to English and Spanish based on a contrastive analysis of the two languages, both in theory and practice.

**Prerequisites:** SPAN 4010 with a minimum grade of D-**Term Offered:** Spring**SPAN 4070 History Of The Spanish Language**

[3 credit hours]

A study of the development of the Spanish language from Vulgar Latin to the present, illustrated with selected texts.

**Term Offered:** Spring**SPAN 4110 Introduction To Spanish Linguistics**

[4 credit hours]

Basic concepts of linguistics as applied to the study of the Spanish language and its dialectal systems. Emphasis on phonetics, phonology, morphology, syntax and semantics.

**Term Offered:** Spring, Fall**SPAN 4120 Teaching Colloquia**

[3 credit hours]

A course in the theory of second language acquisition and practice of teaching foreign / second languages in general.

**Term Offered:** Spring, Summer, Fall**SPAN 4190 Study Abroad**

[1-12 credit hours]

The course permits the Spanish major or minor to spend time in a country where Spanish is spoken. Credit awarded in accordance with established departmental procedures.

**Prerequisites:** SPAN 3020 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**SPAN 4250 Latin American Short Story**

[3 credit hours]

Development of the Latin American short story from its origins with special emphasis on the contemporary authors such as Allende, Borges, Cortazar, Garcia Marquez and Rulfo among others.

**Prerequisites:** SPAN 3020 with a minimum grade of D-**Term Offered:** Fall**SPAN 4820 Modern Spanish Drama**

[3 credit hours]

Critical readings of Spanish drama from Romanticism to the latest contemporary trends.

**SPAN 4830 Hispanic Cinema**

[3 credit hours]

Critical viewings of Spanish-language films from Spain and the Americas. Emphasis on cultural criticism.

**Term Offered:** Spring, Fall**SPAN 4910 Honors Research In Spanish**

[3 credit hours]

Independent research in special topics. May be repeated once for credit.

**SPAN 4940 Internship in Spanish**

[0-12 credit hours]

Educational work experience, using Spanish, in a pre-approved professional field.

**Term Offered:** Spring, Fall**SPAN 4980 Special Topics**

[3 credit hours]

Study and research in specific areas or authors with considerable reading of Spanish texts plus written reports in Spanish.

**Term Offered:** Spring, Fall

Qualified students are invited to pursue Honors in a French, German, or Spanish major and thereby earn the degree designation of "Departmental

Honors" in their specific field upon graduation. Formal application for Departmental Honors must be made in the Department Office (Field House Room 2400). Normally, a petition for admission to the program should be made near the end of the sophomore year. Formal acceptance is based on the following:

1. Junior or senior standing;
2. A GPA of 3.3 overall in the major; and
3. Approval by the language Honors adviser and the Chairperson of the Department of World Languages and Cultures.

To graduate with the degree designation of "Departmental Honors," the student must:

1. Satisfy the standards requirements listed above for the major;
2. Maintain a GPA of 3.3 overall and in the major;
3. Satisfactorily complete a minimum of 12 hours of departmental honors course work at the 3000- or 4000 level; and
4. include among the 12 hours the Honors Research course (FREN 4910, GERM 4910, or SPAN 4910) that normally leads to the completion of an Honors thesis.

## B.A. in Spanish

Code	Title	Hours
<b>General Spanish Major</b>		
SPAN 3000	Spanish Grammar	3
SPAN 3010	Conversation And Composition I	3
SPAN 3020	Conversation And Composition II	3
SPAN 3410	Spanish Culture And Civilization	3
or SPAN 3420	Latin American Civilization	
SPAN 4010	Syntax And Stylistics	4
or SPAN 4110	Introduction To Spanish Linguistics	
Select two of the following:		6
SPAN 3210	Survey Of Spanish Literature I	
SPAN 3220	Survey Of Spanish Literature II	
SPAN 3270	Survey Of Latin American Literature I	
SPAN 3280	Survey Of Latin American Literature II	
Additional 2000-3000-4000 level courses with adviser's approval.		12
SPAN 2140 and 2150 are approved 2000 level courses for the major.		
<b>Total Hours</b>		<b>34</b>

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term	Hours
AR 1000 First Year Orientation	1
ENGL 1110 College Composition I	3
SPAN 1110 Elementary Spanish I	4
Social Sciences Core	3
HIST 1010-1200 Arts/Humanities Core (History)	3
MATH 1180 Reasoning With Mathematics	3
<b>Hours</b>	<b>17</b>

### Second Term

SPAN 1120	Elementary Spanish II	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		3
Social Sciences Core		3
Arts/Humanities Core (Fine Art)		3
<b>Hours</b>		<b>16</b>

### Third Term

SPAN 2140	Intermediate Spanish I	3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
ENGL 2710-2800 Arts/Humanities Core (English Lit)		3
Diversity of US		3
Elective		3
<b>Hours</b>		<b>16</b>

### Fourth Term

SPAN 2150	Intermediate Spanish II	3
SPAN Major Elective		3
Arts/Humanities Core		3
Non-US Diversity		3
Core Elective		3
<b>Hours</b>		<b>15</b>

### Fifth Term

SPAN 3000	Spanish Grammar	3
SPAN 3010	Conversation And Composition I	3
Related or Minor course		6
Elective		3
<b>Hours</b>		<b>15</b>

### Sixth Term

SPAN 3020	Conversation And Composition II	3
SPAN 3410	Spanish Culture And Civilization	3
or SPAN 3420	or Latin American Civilization	
Related or Minor course		6
WAC Requirement		3
<b>Hours</b>		<b>15</b>

### Seventh Term

SPAN 4010	Syntax And Stylistics	4
or SPAN 4110	or Introduction To Spanish Linguistics	
SPAN 3210	Survey Of Spanish Literature I	3
or SPAN 3270	or Survey Of Latin American Literature I	
SPAN Major Elective		3
General Elective		2
Related or Minor course		3
<b>Hours</b>		<b>15</b>

### Eighth Term

SPAN 3220	Survey Of Spanish Literature II	3
or SPAN 3280	or Survey Of Latin American Literature II	
SPAN Major Elective		3
SPAN Major Elective		3

SPAN Major Elective	3
Related or Minor course	3
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>124</b>

- PLO 1: Speaking objectives. Spanish majors are able to initiate, sustain, and bring to closure a variety of uncomplicated communicative tasks including those required in university classes taught entirely in the target language. They are able to narrate events and to describe people, places, and things using paragraph-length connected discourse. They can exchange or explain preferences, opinions, and emotions and provide advice on a variety of familiar and some concrete topics that they have researched, using connected sentences that may combine to form paragraphs and asking a variety of questions, often across various time frames. In both interpersonal and presentational communications, they should both demonstrate the ability to understand and be understood by interlocutors, including native speakers of Spanish who are accustomed to dealing with foreign speakers.
- PLO 2: Writing objectives. Majors can write compositions and simple summaries and express their thoughts about familiar topics, using sentences and series of connected sentences often across various time frames. They are able to write compositions that demonstrate mechanical and grammatical correctness and that show a precise and correct use of vocabulary. Their compositions are also well organized, clear, and have some intellectual or artistic interest. Students are able to write down everything they are able to say aloud, using an appropriate register in description, narratives, personal expressions, etc. They are also able to write longer analytical texts on a variety of topics.
- PLO 3: Grammar objectives. Majors are able to communicate clearly and correctly in the target language. Clear communication is based on the accurate use and understanding of correct forms and structures. Majors are able to identify forms and structures that they have mastered and to apply them appropriately within the contexts.
- PLO 4: Literature Objectives. Majors should be familiar with a range of texts by various authors from different historical periods and several Hispanic areas and be able both to place them in relevant contexts and to discuss them in the target language using critical concepts derived from philosophical, stylistic, aesthetic and hermeneutical approaches, among others. The literary knowledge objective has two components: knowledge of literary history and critical reading skills.
  - (a) Literary history. Majors are able to situate literary texts into their literary, political and social-historical contexts and to classify literary texts according to historical genres (essay, novel, lyric poetry, drama etc.) and style periods (Renaissance, Classicism, Romanticism, etc.), as well as to evaluate their current relevance and the ongoing contributions to the tradition to which they belong. They should also be able to indicate which texts do not easily fit into given generic or stylistic categories and why. Majors should be able to use the library as well as electronic sources to gain access to relevant materials in and about literature in the target language.
  - (b) Critical reading. Majors are able to understand the main idea and some pieces of information on familiar topics from sentences and series of connected sentences within a text and they can understand flow of events expressed in various time frames. They are able to understand fully and with ease short, non-complex texts that convey

basic information and deal with personal and social topics to which the reader brings personal interest or knowledge. They can respond coherently and react critically to texts they have read, formulate relevant questions and problems, and show how these concerns may be clarified. They are able to identify, understand, and analyze the texts they have read.

- PLO 5: Linguistic objectives. Students not only demonstrate the correct usage of the target language but also its structure, history, and varieties (dialectal, sociolectal, etc.). Students gain knowledge of the main branches of linguistics as they apply to Spanish (phonetics, phonology, morphology, syntax, semantics, and pragmatics) and apply this knowledge to their own use of the target language through the study of stylistics.
- PLO 6: Culture Objectives. Majors can make comparisons between products and practices to help them understand perspectives in their own and other cultures. They can identify a number of texts, artifacts, monuments, terms, names, places, concepts, behavior, dates, and other cultural facts from periods of the target culture s history, geography, and institutions. Majors can establish these concepts within relevant contexts and explain in the target language their meaning or importance. They can recognize that significant differences in behaviors exist among cultures, use appropriate learned behaviors and avoid major social blunders. They can converse with peers from Spanish-speaking countries in familiar situations at school, work, or play, and show interest in basic cultural similarities and differences. Majors can use the library and electronic sources to gain access to relevant materials on the target civilization.

## Certificate in Intercultural Competency

Code	Title	Hours
<b>Required</b>		
FLAN 3440	Intercultural Communication: Principles And Practice	4
Select any two culture courses below (taught in English):		6
ARBC 1080	Culture and Commerce in the Arabic-Speaking World	
ARBC 1090	Culture of the Arabic-Speaking World	
ASST 2100	Introduction to Asian Studies	
CHIN 1090	Chinese Culture	
FREN 1080	Culture And Commerce In The French-Speaking World	
FREN 1090	French & Francophone Culture In The Modern World	
FREN 3400	Cross-Cultural Understanding	
GERM 1080	German Culture And Commerce	
GERM 1090	Introduction To Modern German Culture	
JAPN 1080	Japanese Culture And Commerce	
JAPN 1090	Introduction To Japanese Culture	
MES 2400	Introduction to the Contemporary Cultures of the Middle East through Movies and Arts	
SPAN 1080	Culture & Commerce In The Spanish-Speaking World	



SPAN 1090	Culture Of Latin America	
SPAN 1100	Culture Of Spain	
<b>Total Hours</b>		<b>10</b>

- PLO 1. Students will demonstrate an understanding of the cultural elements of communication.
- PLO 2. Students will be able to identify specific communication differences across selected cultures.
- PLO 3. Students will be able to compare and contrast specific communication differences across selected cultures.
- PLO 4. Students will demonstrate professional communication skills orally and in written form.

## Certificate in Issues in Second Language Teaching

Code	Title	Hours
ENGL 3150	Linguistic Principles	3
FLAN 3440	Intercultural Communication: Principles And Practice	4
FLAN 4160	Teaching Colloquia	3
CI 4430		3
or ENGL 4210	Issues in ESL Writing	

## Certificate in Spanish Translation and Interpretation

This program provides students with the language skills and cultural knowledge to do translation and interpretation. The certificate documents student outcomes relative to the underlying principles of this field, grounded through in-class and out of class experiences.

Code	Title	Hours
<b>Required:</b>		
SPAN 3170	Business Spanish	3
SPAN 4010	Syntax And Stylistics	4
SPAN 4060	Translation & Interpretation In Spanish	3
<b>Total Hours</b>		<b>10</b>

## Certificate in World Language Proficiency

The certificate in World Language Proficiency is issued based on language proficiency level on the ACTFL (American Council on the Teaching of Foreign Languages) proficiency scale, rather than exclusively on the course credit hours. Students may apply for the Certificate in World Language Proficiency after completing the second year courses in a world language. Students earn the certificate when they demonstrate a minimum of "Intermediate Low" level in French, German, and Spanish, or "Novice High" in Arabic, Chinese, and Japanese on the ACTFL proficiency scale, using the Assessment of the Performance toward Proficiency in Languages (AAPPL) test or the Avant Standards-based Measurement of Proficiency (STAMP) test in reading, writing, listening, and speaking.

<b>World Language Proficiency in Arabic</b>		
Code	Title	Hours
ARBC 1120	Elementary Arabic II	4
ARBC 2140	Intermediate Arabic I	3
ARBC 2150	Intermediate Arabic II	3
<b>Total Hours</b>		<b>10</b>

<b>World Language Proficiency in Chinese</b>		
Code	Title	Hours
CHIN 1120	Elementary Chinese II	4
CHIN 2140	Intermediate Chinese I	3
CHIN 2150	Intermediate Chinese II	3
<b>Total Hours</b>		<b>10</b>

<b>World Language Proficiency in French</b>		
Code	Title	Hours
FREN 1120	Elementary French II	4
FREN 2140	Intermediate French I	3
FREN 2150	Intermediate French II	3
<b>Total Hours</b>		<b>10</b>

<b>World Language Proficiency in German</b>		
Code	Title	Hours
GERM 1120	Elementary German II	4
GERM 2140	Intermediate German I	3
GERM 2150	Intermediate German II	3
<b>Total Hours</b>		<b>10</b>

<b>World Language Proficiency in Japanese</b>		
Code	Title	Hours
JAPN 1120	Elementary Japanese II	4
JAPN 2140	Intermediate Japanese I	3
JAPN 2150	Intermediate Japanese II	3
<b>Total Hours</b>		<b>10</b>

<b>World Language Proficiency in Spanish</b>		
Code	Title	Hours
SPAN 1120	Elementary Spanish II	4
SPAN 2140	Intermediate Spanish I	3
SPAN 2150	Intermediate Spanish II	3
<b>Total Hours</b>		<b>10</b>

## Minor in Applied German

### Minor in World Languages and Cultures

A minimum of 22 hours is required for the minor in German and Japanese. A minor in Spanish requires 21 hours. All course work must be in the same language and at the 2000 level or higher for Arabic, French, Japanese, and Spanish; at the 3000 level or higher for German. A minimum of 18 hours is required for the minors in Arabic, General French, and Applied French.

Students wishing to receive a minor in World Languages and Cultures have the responsibility, in consultation with the advisor in their major, to

see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should make sure that the minor in World Languages and Cultures is an approved program within their college.

Candidates for the minor in World Languages and Cultures must have their course work verified and approved by a World Languages and Cultures Department advisor or that department's chairperson at the time they make formal application for graduation. A form for this verification can be obtained from the college or department office.

Courses required for either the major or minor may not be taken P/NC; however, up to 12 hours of P/NC course work may be included in the related area.

Code	Title	Hours
<b>Required Courses</b>		
GERM 3010	Conversation And Composition I	3
GERM 3020	Conversation And Composition II	3
Select one of the following:		3
GERM 3410	Survey Of German Civilization I	
GERM 3420	Survey Of German Civilization II	
GERM 4200	German Culture And Civilization	
GERM 4980	Special Topics In German Studies (as applicable)	
GERM 3170	Business German	3
or GERM 3180		
GERM 4010	German Syntax And Stylistics I	3
GERM 4020	Advanced Conversation And Composition II - WAC	4
<b>Electives</b>		
Select 3 hours		3
<b>Total Hours</b>		<b>22</b>

## Minor in Arabic

### Minor in World Languages and Cultures

A minimum of 22 hours is required for the minor in German and Japanese. A minor in Spanish requires 21 hours. All course work must be in the same language and at the 2000 level or higher for Arabic, French, Japanese, and Spanish; at the 3000 level or higher for German. A minimum of 18 hours is required for the minors in Arabic, General French, and Applied French.

Students wishing to receive a minor in World Languages and Cultures have the responsibility, in consultation with the advisor in their major, to see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should make sure that the minor in World Languages and Cultures is an approved program within their college.

Candidates for the minor in World Languages and Cultures must have their course work verified and approved by a World Languages and Cultures Department advisor or that department's chairperson at the time they make formal application for graduation. A form for this verification can be obtained from the college or department office.

Courses required for either the major or minor may not be taken P/NC; however, up to 12 hours of P/NC course work may be included in the related area.

Code	Title	Hours
<b>Required Courses</b>		
ARBC 2140	Intermediate Arabic I	3
ARBC 2150	Intermediate Arabic II	3
ARBC 3010	Conversation and Composition I	3
ARBC 3020	Conversation and Composition II	3
<b>Electives</b>		
Select 6 hours of 3000-4000 level courses		6
<b>Total Hours</b>		<b>18</b>

## Minor in French

### Minor in World Languages and Cultures

A minimum of 22 hours is required for the minor in German and Japanese. A minor in Spanish requires 21 hours. All course work must be in the same language and at the 2000 level or higher for Arabic, French, Japanese, and Spanish; at the 3000 level or higher for German. A minimum of 18 hours is required for the minors in Arabic, General French, and Applied French.

Students wishing to receive a minor in World Languages and Cultures have the responsibility, in consultation with the advisor in their major, to see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should make sure that the minor in World Languages and Cultures is an approved program within their college.

Candidates for the minor in World Languages and Cultures must have their course work verified and approved by a World Languages and Cultures Department advisor or that department's chairperson at the time they make formal application for graduation. A form for this verification can be obtained from the college or department office.

Courses required for either the major or minor may not be taken P/NC; however, up to 12 hours of P/NC course work may be included in the related area.

### General and Applied French Minor

A minimum of 18 hours is required for the Minor in French. FREN 2140 and FREN 2150 may be included as electives.

Code	Title	Hours
<b>Required Courses</b>		
FREN 3010	Conversation And Composition I	3
FREN 3020	Conversation And Composition II	3
<b>Electives</b>		
Select 12 hours		12
<b>Total Hours</b>		<b>18</b>



## Minor in General German

### Minor in World Languages and Cultures

A minimum of 22 hours is required for the minor in German and Japanese. A minor in Spanish requires 21 hours. All course work must be in the same language and at the 2000 level or higher for Arabic, French, Japanese, and Spanish; at the 3000 level or higher for German. A minimum of 18 hours is required for the minors in Arabic, General French, and Applied French.

Students wishing to receive a minor in World Languages and Cultures have the responsibility, in consultation with the advisor in their major, to see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should make sure that the minor in World Languages and Cultures is an approved program within their college.

Candidates for the minor in World Languages and Cultures must have their course work verified and approved by a World Languages and Cultures Department advisor or that department's chairperson at the time they make formal application for graduation. A form for this verification can be obtained from the college or department office.

Courses required for either the major or minor may not be taken P/NC; however, up to 12 hours of P/NC course work may be included in the related area.

Code	Title	Hours
GERM 3010	Conversation And Composition I	3
GERM 3020	Conversation And Composition II	3

Electives: 12 hours: 6 may be at 2000 level. Including the following:

GERM 2140	Intermediate German I
GERM 2150	Intermediate German II

Remaining credits are at the German 3000-4000 level. Electives include:

GERM 3410	Survey Of German Civilization I
GERM 3420	Survey Of German Civilization II
GERM 3980	Special Topics in German Studies
GERM 4010	German Syntax And Stylistics I
GERM 4020	Advanced Conversation And Composition II - WAC
GERM 4190	

Study Abroad Electives may include one course taught in English:

GERM 4160	Teaching Colloquia
GERM 4870	German Literature In Translation

- PLO 1. German minors are able to initiate, sustain, and bring to closure a variety of communicative tasks including those required in university classes taught entirely in the target language.
- PLO 2. German minors are able to write compositions that demonstrate mechanical and grammatical correctness and that show a precise and correct use of vocabulary. Their compositions are also well organized, clear, and have some intellectual or artistic interest.
- PLO 3. German minors are able to communicate clearly and correctly in the target language. Clear communication is based on the accurate use and understanding of correct forms and structures.

- PLO 4. German minors are familiar with a range of texts and are able both to place them in relevant contexts and to discuss them in the target language using critical concepts.
- PLO 5. German minors are able to identify a number of texts, artifacts, monuments, terms, names, places, concepts, behavior, dates, and other cultural facts from periods of the target culture's history, geography, and institutions.

## Minor in Japanese

### Minor in World Languages and Cultures

A minimum of 22 hours is required for the minor in German and Japanese. A minor in Spanish requires 21 hours. All course work must be in the same language and at the 2000 level or higher for Arabic, French, Japanese, and Spanish; at the 3000 level or higher for German. A minimum of 18 hours is required for the minors in Arabic, General French, and Applied French.

Students wishing to receive a minor in World Languages and Cultures have the responsibility, in consultation with the advisor in their major, to see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should make sure that the minor in World Languages and Cultures is an approved program within their college.

Candidates for the minor in World Languages and Cultures must have their course work verified and approved by a World Languages and Cultures Department advisor or that department's chairperson at the time they make formal application for graduation. A form for this verification can be obtained from the college or department office.

Courses required for either the major or minor may not be taken P/NC; however, up to 12 hours of P/NC course work may be included in the related area.

Code	Title	Hours
<b>Required Courses</b>		
JAPN 2140	Intermediate Japanese I	3
JAPN 2150	Intermediate Japanese II	3
JAPN 3010	Conversation And Composition I	3
JAPN 3020	Conversation And Composition II	3
<b>Electives</b>		
Select additional two 3-hour+ courses at 3/4000 level		6
<b>Electives</b>		
Select one of the following culture courses:		3
JAPN 1090	Introduction To Japanese Culture	
JAPN 1080	Japanese Culture And Commerce	

**Total Hours** **21**

- Students can demonstrate understanding of the the main idea and some pieces of information on familiar topics from sentences and series of connected sentences within texts that are spoken, written, or signed.
- Students can participate in spontaneous spoken, written, or signed conversations on familiar topics, creating sentences and series of sentences to ask and answer a variety of questions.

- Students can communicate information, make presentations, and express their thoughts about familiar topics, using sentences and a series of connected sentences through spoken, written, or signed language.
- Students can make comparisons between products and practices to help them understand perspectives.
- Students can interact at a functional level in some familiar contexts. Japanese Minor students are encouraged to participate in the Study Abroad Program either for one semester or a full year at one of our hosting universities in Japan with an exchange agreement. Through the study abroad experience, students will be able to achieve advanced proficiency in Japanese, such as 1) understanding the main message and supporting details on a wide variety of familiar and general interest topics, 2) maintaining spontaneous spoken, written, or signed conversations and discussions, 3) delivering detailed and organized presentations on familiar as well as unfamiliar topics, 4) being able to explain some diversity among products and practices and how it relates to perspectives, and 5) interacting at a competent level in familiar and some unfamiliar contexts.

## Minor in Language and Linguistics

Code	Title	Hours
LING 3150	Linguistic Principles	3
<i>Select one of the following:</i>		3
ARBC 2150	Intermediate Arabic II	
CHIN 2150	Intermediate Chinese II	
FREN 2150	Intermediate French II	
GERM 2150	Intermediate German II	
LAT 2150	Intermediate Latin II	
SPAN 2150	Intermediate Spanish II	
<i>Any 4 courses from the following:</i>		12
ANTH 2800	Cultural Anthropology	
CSET 1100	Introduction to Computer Science and Engineering Technology	
CSET 1200	Object Oriented Programming and Data Structures	
FLAN 3440	Intercultural Communication: Principles And Practice	
FLAN 4160	Teaching Colloquia	
FLAN 4980	Special Topics in Foreign Languages	
LING 4190	Sociolinguistics	
LING 4210	Issues In Esl Writing	
LING 4980	Special Topics	
LING 4990		
PHIL 1010	Introduction To Logic	
PHIL 3060	Philosophy Of Language	
PSY 3400	Cognitive Neuropsychology	
PSY 3610	Behavioral Neuroscience	
SLP 3010	Clinical Phonetics	
SPAN 4010	Syntax And Stylistics	
SPAN 4060	Translation & Interpretation In Spanish	
SPAN 4070	History Of The Spanish Language	
SPAN 4110	Introduction To Spanish Linguistics	

SPED 3130 Linguistic Analysis

**Total Hours** **18**

- Students will describe the relationship between language, society, cognition and culture.

## Minor in Spanish

### Minor in World Languages and Cultures

A minimum of 22 hours is required for the minor in German and Japanese. A minor in Spanish requires 21 hours. All course work must be in the same language and at the 2000 level or higher for Arabic, French, Japanese, and Spanish; at the 3000 level or higher for German. A minimum of 18 hours is required for the minors in Arabic, General French, and Applied French.

Students wishing to receive a minor in World Languages and Cultures have the responsibility, in consultation with the advisor in their major, to see that the necessary course work is included in the total number of undergraduate courses taken. Students outside the College of Arts and Letters should make sure that the minor in World Languages and Cultures is an approved program within their college.

Candidates for the minor in World Languages and Cultures must have their course work verified and approved by a World Languages and Cultures Department advisor or that department's chairperson at the time they make formal application for graduation. A form for this verification can be obtained from the college or department office.

Courses required for either the major or minor may not be taken P/NC; however, up to 12 hours of P/NC course work may be included in the related area.

Change SPAN 4000 to "Span 4000 Advanced Spanish Grammar, 3hrs." to "Span 4000 Advance Spanish Grammar, 3hrs. OR Span 4010 Stylistics and Syntax, 4 hrs." Total: 21/22 hrs.

Code	Title	Hours
<b>Required Courses</b>		
SPAN 3000	Spanish Grammar	3
SPAN 3010	Conversation And Composition I	3
SPAN 3020	Conversation And Composition II	3
SPAN 4000	Advanced Spanish Grammar	3
	or SPAN 4010 Syntax And Stylistics	
<i>Select one of the following:</i>		3
SPAN 3210	Survey Of Spanish Literature I	
SPAN 3220	Survey Of Spanish Literature II	
SPAN 3270	Survey Of Latin American Literature I	
SPAN 3280	Survey Of Latin American Literature II	
SPAN 3410	Spanish Culture And Civilization	
	or SPAN 3420 Latin American Civilization	
<b>Select 2 elective courses at the 2/3/4000 level. SPAN 2140 and SPAN 2150 are approved for the minor program.</b>		<b>6</b>

- PLO 1. Speaking objectives. Spanish minors are able to converse with ease and confidence when dealing with the routine tasks and



social situations of the Intermediate level. They are able to handle successfully uncomplicated tasks and social situations requiring an exchange of basic information related to their work, school, recreation, particular interests, and areas of competence. They can handle a substantial number of complicated, but they are unable to sustain performance of all of these tasks all of the time. They can narrate and describe in all major time frames using connected discourse of paragraph length, but not all the time. They can generally be understood by native speakers unaccustomed to dealing with non-natives, although interference from another language may be evident (e.g., use of code-switching, false cognates, literal translations), and a pattern of gaps in communication may occur.

- PLO 2. Writing objectives. Minors are able to meet all practical writing needs, such as simple messages and letters, requests for information, and notes. Additionally, they can write compositions and simple summaries related to work and/or school experiences. They can narrate and describe in different time frames when writing about everyday events and situations. The writing is generally comprehensible to natives not used to the writing of non-natives.
- PLO 3. Grammar objectives. Minors are able to communicate clearly and correctly in the target language. Clear communication is based on the accurate use and understanding of correct forms and structures. Minors are able to identify forms and structures that they have mastered and to apply them appropriately within the contexts.
- PLO 4. Literature Objectives. Minors should be familiar with a range of texts by various authors from different historical periods and several Hispanic areas and be able both to place them in relevant contexts and to discuss them in the target language. The literary knowledge objective has two components: recognition of genres and critical reading skills. a) Literary history. Minors are able to situate literary texts into their literary, political and social-historical contexts and to classify literary texts according to historical genres (essay, novel, lyric poetry, drama etc.) as well as to evaluate their current relevance and the ongoing contributions to the tradition to which they belong. They should also be able to indicate which texts do not easily fit into given generic or stylistic categories and why. Minors should be able to use the library as well as electronic sources to gain access to relevant materials in and about literature in the target language. b) Critical reading. Minors are able to understand fully and with ease short, non-complex texts that convey basic information and deal with personal and social topics to which the reader brings personal interest or knowledge. They are able to understand main ideas and some supporting details on familiar topics from a variety of texts. Students are also able to understand some connected texts featuring description and narration although there will be occasional gaps in understanding due to a limited knowledge of the vocabulary, structures, and writing conventions of the language. Students can comprehend information rich texts with highly predictable order. They can respond coherently and react critically to texts they have read, formulate relevant questions and problems, and show how these concerns may be clarified. They are able to identify, understand, and analyze the texts they have read.
- PLO 5. Linguistic objectives. Students not only demonstrate the correct usage of the target language but also its structure, history, and varieties (dialectal, sociolectal, etc.). Students gain knowledge of the main branches of linguistics as they apply to Spanish (phonetics, phonology, morphology, syntax, semantics, and pragmatics) and

apply this knowledge to their own use of the target language through the study of stylistics.

- PLO 6. Culture Objectives. Minors can make comparisons between products and practices related to everyday life and personal interests or studies in student's own and Hispanic cultures. Students are able to converse with peers from the Hispanic culture in familiar situations at school, work, or play and show interest in basic cultural similarities and difference. They can recognize that significant differences in behaviors exist among cultures, use appropriate learned behaviors and avoid major social blunders.

## Minor in World Cultures

Code	Title	Hours
FLAN 2700	World Cultures through Literature and Cinema in Translation	3
Select one of the following:		3-4
FLAN 3440	Intercultural Communication: Principles And Practice	
FLAN 3980	Special Topics in Foreign Languages	
FLAN 4980	Special Topics in Foreign Languages	
Elective courses (any combination of the following 3-credit hour courses) for a total of 12 hours:		12
ARBC 1080	Culture and Commerce in the Arabic-Speaking World	
ARBC 1090	Culture of the Arabic-Speaking World	
ASST 2100	Introduction to Asian Studies	
CHIN 1090	Chinese Culture	
FREN 1080	Culture And Commerce In The French-Speaking World	
FREN 1090	French & Francophone Culture In The Modern World	
FREN 2190		
FREN 3400	Cross-Cultural Understanding	
FREN 4190		
GERM 1080	German Culture And Commerce	
GERM 1090	Introduction To Modern German Culture	
GERM 2190		
GERM 4190		
JAPN 1080	Japanese Culture And Commerce	
JAPN 1090	Introduction To Japanese Culture	
JAPN 2190	Study Abroad	
JAPN 4190	Study Abroad	
LING 4190	Sociolinguistics	
MES 2400	Introduction to the Contemporary Cultures of the Middle East through Movies and Arts	
SPAN 1080	Culture & Commerce In The Spanish-Speaking World	
SPAN 1090	Culture Of Latin America	
SPAN 2190	Study Abroad	
SPAN 4190	Study Abroad	
<b>Total Hours</b>		<b>18-19</b>



- PLO 1. Students will be able to explain key concepts (values, ideas, belief systems, customs, social organization, etc.) related to selected ethnic and national cultures.
- PLO 2. Students will be able to identify cultural products (i.e., art, music, film, literature) related to selected ethnic and national cultures.
- PLO 3. Students will compare and contrast diverse views, perspectives, practices, and traditions across different cultures.
- PLO 4. Students will demonstrate professional communication skills both orally and in writing.

## Interdisciplinary Majors and Minors

### Degrees Offered

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- Africana Studies Program (p. 193)
  - B.A. in Africana Studies (p. 194)
  - Minor in Africana Studies (p. 194)
- Asian Studies Programs (p. 195)
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- Data Analytics Programs (p. 198)
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  - Minor in Latin American and LatinX Studies (p. 209)
- Law and Social Thought (p. 209)
  - B.A. in Law and Social Thought (p. 211)
  - Minor in Law and Social Thought (p. 214)
- Middle East Studies (p. 215)
  - Middle East Studies (p. 215)
  - Middle East Studies Minor (p. 217)

#### AFST 1100 Introduction To Africana Studies

[3 credit hours]

Introductory survey of basic theoretical concepts to analyze the Black experience, with special focus on the general historical process common to the African Diaspora (Africa, Caribbean and the Americas - South, Central and North, especially the USA.)

**Term Offered:** Spring, Summer, Fall  
Multicultural US Diversity

#### AFST 1200 Introduction To The African Experience

[3 credit hours]

Introduction to the African experience through case studies of critical historical experiences: origin of humanity, origin of civilization, empire and traditional society.

**Term Offered:** Spring, Summer, Fall  
Multicultural Non-US Diversity

#### AFST 2100 Foundations Of Black Intellectual History

[3 credit hours]

An examination of slavery and colonialism in the intellectual history of the African Diaspora, especially in the work of W.E.B. Dubois, C.L.R. James and Kwame Nkrumah.

**Prerequisites:** AFST 1100 with a minimum grade of D- or AFST 1200 with a minimum grade of D-

**Term Offered:** Spring  
Multicultural US Diversity

#### AFST 2220 History Of Jazz

[3 credit hours]

A study of the development of jazz styles including listening skills and historical perspectives. Because the major innovations and stylistic interpretations of jazz are a result of African Americans, the course includes a study of how their culture influenced the development of jazz. Students may take P/NC.

**Term Offered:** Spring, Summer, Fall  
Core Arts & Humanities, Multicultural US Diversity, OT36 Arts and Humanities

#### AFST 2660 African Politics

[3 credit hours]

The character and development of African political institutions and processes with a special emphasis on patterns in the post-independence period and prospects for the future.

**Term Offered:** Spring, Summer, Fall  
Multicultural Non-US Diversity

#### AFST 3600 Entrepreneurship and the Black Community

[3 credit hours]

Explores the gap between entrepreneurial aspirations and the actual entrepreneurial enterprises in the black community. Examines the subject in a socio-historical context. Diverse sociological perspectives, methodologies and analyses are employed. Student would need 3 hours of Soci-Science or 3 hours of AFST.

**Term Offered:** Spring, Fall  
Multicultural US Diversity

#### AFST 3700 African Women & the Environment

[3 credit hours]

Overview of empirical evidence and interpretive models of African women with reference to environment. Specific topics: African women managing natural resources; implications of climate change in Africa; ecology and feminism. Student will need 3 hours of Soci-Science or 3 hours of AFST.

**Term Offered:** Spring, Fall

#### AFST 3800 Ecotourism: Studies of the Africana World

[3 credit hours]

Introduce students to the field of ecotourism studies and specific challenges of community development and sustainability. The course covers ecotourism in the Africana world of Africa, the Caribbean, and Latin America.

**Term Offered:** Spring, Fall

**AFST 3900 Perspectives on African American Education**

[3 credit hours]

Covers the history and cultural heritage of African Americans and an in-depth knowledge of experiences of African American student populations in preparation for a variety of career fields, including education, social work, criminal justice, business, nursing, and other professions. Examines key debates and policy proposals to better understand current issues impacting African American student populations. U.S. Diversity

**Term Offered:** Spring, Fall

Multicultural US Diversity

**AFST 4660 African American Literature In The 20th and 21st Century**

[3 credit hours]

A course focused on 20th and 21st century African American poetry, fiction, nonfiction, and drama.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**AFST 4900 Senior Seminar**

[3 credit hours]

General theoretical synthesis of the field focusing on a close reading of a recent biographical work of intellectual history, a recent work of cultural criticism and a recent work of social analysis.

**Term Offered:** Spring, Summer, Fall**AFST 4910 Directed Research**

[1-6 credit hours]

Student selected research topic under the supervision of faculty member and the Director of Africana Studies. Permission to enroll is contingent on a written proposal by the student being accepted by the two sponsoring faculty.

**Term Offered:** Spring, Summer**AFST 4920 Directed Readings**

[1-6 credit hours]

For advanced students wishing to read a specialized literature in the field. Requires a written proposal approved by faculty and Director of the Program.

**Prerequisites:** AFST 1100 with a minimum grade of D- or AFST 1200 with a minimum grade of D-

**AFST 4980 Special Topics In Africana Studies**

[3 credit hours]

Discussion of a substantial issue in scholarly research or public discourse relative to the African Diaspora. May be repeated for different issues. Maximum number of hours for AFST 4980 should not exceed 9 semester hours.

**Term Offered:** Spring, Summer, Fall**ASST 2100 Introduction to Asian Studies**

[3 credit hours]

Introduction to Asian studies will introduce students to important facet of Asian countries including their culture, historical and modern, social and economic systems. Students will learn the cultural bases of Asian countries or regions. The course will be an integral part of the education of those majoring or minoring in Asian Studies.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**ASST 3010 Issues in Asian Studies**

[3 credit hours]

The course covers various topics in Asian Studies, from some specific topics such as Buddhism to the general area of Asian culture. The particular topic may vary depending on the areas of the instructor and the academic interest of the students. It can also serve various topics offered in the study-abroad program.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**ASST 4910 Directed Research**

[1-4 credit hours]

Directed research on a specific topic in Asian Studies. The topic will vary on the instructor and the interest of student in the field.

**Term Offered:** Spring, Summer, Fall**ASST 4920 Directed Readings**

[1-4 credit hours]

Directed readings in Asian Studies of various natures or special topics in Asian Studies. The topic may vary depending on the areas of the instructor and the academic interest of the students.

**DST 2020 Introduction to Disability Studies**

[3 credit hours]

An overview of the key debates, conversations, and ideas about disability in the United States. This course features perspectives from the social sciences on topics such as activism, representation, society, and culture.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity

**DST 2980 Special Topics in Disability Studies**

[1-4 credit hours]

Special topics in Disability Studies. Topics vary by instructor; may be repeated for credit.

**Term Offered:** Spring, Fall**DST 3030 Disability Culture**

[3 credit hours]

An interdisciplinary exploration of the history and culture of disability, including the issues of stigmatizing and stereotyping, communication barriers and breakthroughs, educational segregation and mainstreaming and the experience of "passing."

**Term Offered:** Spring, Summer, Fall**DST 3040 Disability, Technology, and Society**

[3 credit hours]

Interdisciplinary investigation of the relationship between disability and technology, focusing on the social and political dimensions of designing and using technology with, for, and by disabled people.

**Term Offered:** Spring, Summer, Fall**DST 3060 U.S. Disability History**

[3 credit hours]

This course provides a historical overview of the lived experiences of people defined as disabled and changing historical definitions of disability in the region that became the United States of America. We will consider how major historical forces such as capitalism, industrialization, colonialism, and democratic ideals have impacted and been shaped by people with disabilities.

**Term Offered:** Spring, Fall

**DST 3090 Disability in American Literature**

[3 credit hours]

Disability In American Literature addresses a wide range of contemporary literary productions, including novels, graphic novels, plays, short stories, poetry, memoir, and personal essays, connecting these productions to an American literary genealogy and recognizing the deployment and resistance to ableism in American Literature. At the course's conclusion, students will be able to understand how literature interacts with cultural stereotypes, ultimately understanding how literature can be utilized for disability justice and social change.

**Term Offered:** Spring, Summer, Fall**DST 3100 Disability and Chronic Illness**

[3 credit hours]

This course investigates the relationship between chronic illness and disability, asking questions such as: Is chronic illness itself a disability? Does chronic illness cause disability? How do the social and medical models of disability affect our understanding of chronic illness? The course uses interdisciplinary texts (investigative journalism, memoir and literary nonfiction, philosophy, history, political science) to interrogate causes, treatments, cures and non-cures for people living with chronic illness.

**Term Offered:** Spring**DST 3250 Disability and Life Narratives**

[3 credit hours]

This course will examine a diverse selection of disability life narratives and consider what they reveal about disability and the dominant culture.

**Term Offered:** Spring, Fall**DST 3600 Feminist Health Humanities**

[3 credit hours]

This 15-week course will be taught from intersectional, feminist, health humanities perspectives. We will use the arts and culture in combination with humanistic social theory, to examine the following: gendered and racialized health disparities; gendered and racial constructions in the history of science/medicine; illness and disability life writing; biomedical ethics; the feminist health movement; grassroots community health organizing and feminist conceptualizations of wellbeing and radical self-care. Throughout the semester, there will be a sustained emphasis on health justice and the experiences of marginalized communities (women, people of color, the LGBTQ community, people with disabilities, etc.). Participants will leave the course more aware of important discussions in the health humanities and more fully prepared to apply inclusive knowledge practices within majors and career paths involving "health" – broadly defined. The course fulfills core curriculum requirements for Multicultural U.S. Diversity & Writing Across the Curriculum (WAC).

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**DST 3700 Disability and Communication**

[3 credit hours]

In this course we will explore several key communication aspects of disability in society. We will examine the rhetoric of disability, including the ways disability is conceptualized and talked about as well as the growth of disability movements; communication technology and disability; mass media and disability, including the ways the media portray people with disabilities and disability-related issues; and a number of other topics, including interpersonal communication issues around disability.

**Term Offered:** Spring, Fall**DST 3980 Special Topics in Disability Studies**

[1-4 credit hours]

Special topics in Disability Studies. Topics vary by instructor, may be repeated for credit.

**Term Offered:** Spring, Summer, Fall**DST 4000 Global Issues in Disability Studies**

[3 credit hours]

Special focus will be on global and contemporary issues as they arise in changing political and social environments. Geopolitical area of focus may vary based instructor expertise.

**Term Offered:** Fall**DST 4100 Disability and Sexuality**

[3 credit hours]

Utilizing a cultural studies approach, this course investigates complex questions of how someone becomes understood as abnormal in contemporary culture. The course looks at the disability justice and LGBTQA+ justice; trans studies and disability studies; public health and private rights. The course uses interdisciplinary texts including memoir and life writing, philosophy, history, public health and sexuality studies to address questions central to disability justice and lived experience.

**Term Offered:** Spring, Fall**DST 4200 Crip Arts, Crip Culture**

[3 credit hours]

This course explores disability art across media and considers its relationships both with disability culture and with the culture-at-large.

**Term Offered:** Spring**DST 4300 Disability and Children's Literature - WAC**

[3 credit hours]

Disabled characters and disability themes abound in texts presented to young readers. This course explores the use of disabled characters in a variety of nonfiction and fiction for young through young-adult readers.

**Term Offered:** Spring, Fall**DST 4400 Gender and Disability**

[3 credit hours]

This course examines gender and disability from both theoretical and lived perspectives, particularly as intersecting with other structures of power such as race, nationality, sexuality, and rights. Recommended: DST 2020, DST 3020.

**Term Offered:** Spring**DST 4500 Asylums, Prisons and Total Institutions**

[3 credit hours]

Institutionalization has been a major factor in the daily experiences and understandings of disability in U.S. culture. This course will reevaluate all assumptions about institutions by analyzing when and why these spaces of containment and enclosure, such as prisons and institutions, arise.

We will explore how disability and madness are defined, by whom, and for what purposes. The course concludes by analyzing how some ways activists and scholars combat traditional notions of crime, punishment, disability and incarceration.

**Term Offered:** Fall

**DST 4640 Disability Law and Human Rights**

[3 credit hours]

Explores the intersections between disability rights and human rights by examining the development, the ideological framework, and the legal contexts of disability law in the U.S. and global contexts. Recommended: DST 2020, 3020, 3030, or 3060.

**Term Offered:** Spring, Fall**DST 4800 Autism and Culture**

[3 credit hours]

This course examines the ongoing construction of autism and the autism spectrum, exploring the many controversies around this remarkable range of human conditions.

**Term Offered:** Spring, Summer, Fall**DST 4940 Internship In Disability Studies**

[3 credit hours]

This course is a service learning model internship with on-campus and/or community agencies addressing disability studies issues. Sites must be approved by the instructor.

**Prerequisites:** DST 2020 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**DST 4950 Independent Study**

[1-4 credit hours]

Students engage in independent research projects with the supervision of a faculty member.

**Term Offered:** Spring, Summer, Fall**DST 4960 Honors Thesis and Capstone Project**

[1-4 credit hours]

Independent study projects for students seeking departmental honors.

**Term Offered:** Spring, Summer, Fall**DST 4980 Special Topics in Disability Studies**

[1-4 credit hours]

Special topics in Disability Studies. Topics vary by instructor; may be repeated for credit.

**Term Offered:** Spring, Fall**DST 4990 Capstone in Disability Studies**

[3 credit hours]

Provides students with an opportunity to engage with professionals and professors in a seminar format for the intensive study of a topic related to Disability Studies. The focus of the seminar will change from year to year.

**Prerequisites:** DST 2020 with a minimum grade of D-**Term Offered:** Spring, Fall**GLST 2000 Principles Of Global Studies**

[3 credit hours]

A multidisciplinary exploration of the world. Global processes will be examined using many viewpoints, such as culture, politics, economics, geography and philosophy.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**GLST 2980 Topics In Global Studies**

[3 credit hours]

An exploration of a specific global issue. Approaches will be explicitly multidisciplinary and will make use of a variety of perspectives. May be repeated for credit.

**Term Offered:** Spring, Fall**GLST 4900 Senior Seminar In Global Studies**

[3 credit hours]

Theories and research methods in global studies will be examined. A major component of the course will be a research project on some aspect of global studies.

**Prerequisites:** GLST 2000 with a minimum grade of D-**Term Offered:** Spring, Summer**GLST 4960 Honors Thesis In Global Studies**

[3 credit hours]

Supervised research and writing for honors students only. May be taken twice for credit.

**Prerequisites:** GLST 2000 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**GLST 4980 Advanced Topics In Global Studies**

[3 credit hours]

An advanced multidisciplinary exploration of a specific issue in global studies. May be repeated for credit.

**Term Offered:** Fall**LST 2010 Law And Social Thought**

[3 credit hours]

This course examines the function and force of law in society in an interdisciplinary context. Students are given the opportunity to think about law in relationship to society, morality, politics, language, history and power. Readings may include perspectives from philosophy, literature, psychology, sociology, history, anthropology and opinions of the court.

**Term Offered:** Spring, Fall**LST 2030 Cultural Geography**

[3 credit hours]

A learning-through-writing course. Systematic applications of the concept of cultural to geographic themes: culture areas, cultural landscapes, culture history, cultural ecology and cultural diversity.

**Term Offered:** Spring

Multicultural Non-US Diversity

**LST 2500 Proseminar I**

[1 credit hour]

For sophomore and junior majors in LST: discussion among faculty and students of the interdisciplinary study of law and LST program development. Topics vary, may be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-**Term Offered:** Spring, Fall**LST 2640 Race, Class, And Gender**

[3 credit hours]

Introduction to the study of race, class and gender as factors in American satisfaction.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity, OT36 Social Science

**LST 2700 Principles of Political Theory - WAC**

[3 credit hours]

This course investigates core concepts in the history of political theory such as justice, liberty, and equality. We discuss how and why the influence of certain authors and ideas persists. Contemporary issues are interpreted using these authors and ideas in order to strengthen critical thinking skills and broaden students' thinking about politics.

**Prerequisites:** LST 2010 with a minimum grade of D-**Term Offered:** Spring, Fall

**LST 2980 Special Topics**

[3 credit hours]

Special topics in Law and Social Thought. Topics vary by instructor, may be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**LST 3050 Economics Of Gender**

[3 credit hours]

Analysis of labor market outcomes and income distribution characteristics resulting from gender differences; gender-related economic outcomes: the "feminization of poverty," persistent male-female wage differential, expanding proportions of female-headed and same sex households.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**LST 3060 U.S. Disability History**

[3 credit hours]

This course provides a historical overview of the lived experiences of people defined as disabled and changing historical definitions of disability in the region that became the United States of America. We will consider how major historical forces such as capitalism, industrialization, colonialism, and democratic ideals have impacted and been shaped by people with disabilities.

**Prerequisites:** LST 2010 with a minimum grade of D-

**LST 3080 Economics Of Crime**

[3 credit hours]

Study of crime as an economic activity; costs of crime to the community; economic approach to crime reduction.

**Term Offered:** Spring, Fall

**LST 3180 Media Communication Law**

[3 credit hours]

Case studies and readings in libel, privacy, access and other legal issues arising from constitutional, judicial and administrative laws that affect mass communication.

**Term Offered:** Spring, Fall

**LST 3500 Proseminar II**

[1 credit hour]

For Junior and Senior majors in LST: discussion among faculty and students of the interdisciplinary study of law and LST program development. Topics vary, may be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Fall

**LST 3510 Constitutional Law I**

[3 credit hours]

Examines the political and institutional role of the U.S. Supreme Court in the development of the American legal system, the separation of powers between the executive, legislative, and judicial branches of the federal government, and the relationship between the federal government and the states. The course focuses on the analysis of Supreme Court cases as well as political science and legal scholarship.

**Term Offered:** Spring, Fall

**LST 3520 Constitutional Law II**

[3 credit hours]

The development of the American legal system and the implications of judicial decisions affecting the institutions and powers of government, the federal system and the relationship of the individual to government.

**Prerequisites:** PSC 1200 with a minimum grade of D-

**Term Offered:** Spring, Fall

**LST 3550 Principles Of Law**

[3 credit hours]

An overview of the politics of law. We examine such questions as the sources and existence of law, the legal process in civil and criminal cases, the nature of rights and the search for justice through participation in the legal system. Addresses specific issues such as plea bargaining and jury trials, personal injury lawsuits, national security and police powers, and the nomination and confirmation of federal judges.

**Term Offered:** Spring, Summer, Fall

**LST 3710 Psychology And The Law**

[3 credit hours]

Emphasizes the utilization of theoretical and empirical notions of psychological science as they apply to both civil and criminal law.

**LST 3750 Social And Political Philosophy**

[3 credit hours]

A study of classic and contemporary treatments of justice, authority, the relations between individual and community, the meaning of freedom and equality, power and violence, and race and gender.

**Term Offered:** Fall

**LST 3760 Crime And Punishment**

[3 credit hours]

A philosophical study of topics such as crime, responsibility, justice and punishment. Special attention is paid to current practices in the criminal justice system.

**Term Offered:** Spring, Fall

**LST 3770 Art and Disease - WAC**

[3 credit hours]

This WAC course considers how objects of material culture (film, photography, painting, sculpture, etc.) have intersected with disease while studying disease-related texts and histories of contagion (e.g., AIDS). Web-assisted course.

**Prerequisites:** LST 2010 with a minimum grade of D-

**LST 3800 Sexual Politics**

[3 credit hours]

This course examines sexual politics through studying canonical literature of Western political theory, feminism and postmodern theory.

**Term Offered:** Spring, Fall

**LST 3810 Political Geography**

[3 credit hours]

An examination of geopolitical and geostrategic issues at the nation-state and international level.

**Term Offered:** Spring, Fall

**LST 3820 Contemporary Political Ideas**

[3 credit hours]

Surveys trends in 20th century political and social thought, including critical theory, post-structuralist theory, feminism and anti-racist politics. Particular issues addressed include bureaucracy, mass society, state and civil violence, and identity politics.

**Term Offered:** Spring**LST 3980 Special Topics**

[3 credit hours]

Special topics relating to issues in Law and Social Thought. Topics vary by instructor, may be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**LST 4000 Global Issues in Disability Studies**

[3 credit hours]

Special focus will be on global and contemporary issues as they arise in changing political and social environments. Geopolitical area of focus may vary based instructor expertise.

**Term Offered:** Fall**LST 4010 Islamic Law and Society**

[3 credit hours]

This course will survey Islamic law in historical and comparative modern contexts. This course will provide (a) basic introduction to the sources and methods of classical Islamic legal interpretation, (b) survey of the most pressing areas in which traditional Islamic norms remain relevant today—criminal law, family law, and commercial law, (c) the challenges and transformations introduced by colonialism, modernity, and the nation-state, and (d) comparison with the American law and the constitution, highlighting comparative interpretive methods such as originalism versus progressivism, and innovative dimensions of Islamic law such as legal pluralism, wide room for local custom, religious diversity, and restorative justice.

**Term Offered:** Spring**LST 4550 Issues In Contemporary Law**

[3 credit hours]

Examination of contemporary approaches to the analyses of law and the judicial system with special focus on current issues facing the courts.

**Term Offered:** Spring, Fall**LST 4590 Law, Policy And The Politics of Sexuality**

[3 credit hours]

This course explores the public policies that affect the lesbian, gay, bisexual and transgender communities in the United States and in other countries. It examines the factors that affect policymaking in this area.

**Term Offered:** Spring, Fall**LST 4640 Disability Law and Human Rights**

[3 credit hours]

Explores the intersections between disability rights and human rights by examining the development, the ideological framework, and the legal contexts of disability law in the U.S. and global contexts. Recommended: DST 2020, 3020, 3030, or 3060.

**Term Offered:** Spring, Fall**LST 4710 Criminology**

[3 credit hours]

Crime and criminal behavior: nature, types and extent of crime, societal reactions; problems in research and theory, prevention, control and treatment.

**Term Offered:** Summer**LST 4840 Ecotourism: Studies of the Africana World**

[3 credit hours]

Introduce students to the field of ecotourism studies and specific challenges of community development and sustainability. The course covers ecotourism in the Africana world of Africa, the Caribbean, and Latin America.

**Prerequisites:** LST 2010 with a minimum grade of D-**LST 4900 Seminar In Law And Social Thought**

[3 credit hours]

Advanced seminar for the interdisciplinary study of law in society. Topics vary by instructor, may be repeated for credit. Required of LST majors.

**Prerequisites:** LST 2010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**LST 4940 Field Experience**

[1-6 credit hours]

Community work, internship, or field study relating to law and society. May be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**LST 4980 Special Topics**

[3 credit hours]

Advanced seminar in Law and Social Thought. Topics vary by instructor, may be repeated for credit. Required of LST majors.

**Prerequisites:** LST 2010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**LST 4990 Capstone in Law and Social Thought**

[3 credit hours]

The Capstone course in Law and Social Thought is an interdisciplinary, collaboratively taught seminar thematically organized around a topic in the study of law.

**Prerequisites:** LST 2010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

## A.A. in Liberal Arts

A candidate for the Associate Degree in Liberal Arts must complete the requirements listed below:

- Satisfy all entrance requirements for the College of Arts and Letters.
- Earn a cumulative University of Toledo grade point average of at least 2.0 ("C" average) for all coursework attempted.
- Complete a minimum of 15 credit hours to meet the University of Toledo residency requirement
- Complete a minimum of 60 credit hours
- Complete the course requirements for the degree program as described in the catalog section below.

Code	Title	Hours		
<b>I. General Education Requirements</b>		<b>25</b>		
<b>A. Oral and Written communication</b>		<b>3</b>		
ENGL 1110	College Composition I	3	or PHIL 1010	Introduction To Logic
	or ENGL 1010 College Composition I Co-Requisite		or PHIL 1020	Critical Thinking
<b>B. Mathematics</b>		<b>3</b>	or PHIL 2200	Introduction To Philosophy
MATH 1180	Reasoning With Mathematics	3	or PHIL 2400	Contemporary Moral Problems
	or MATH 1320 College Algebra		or REL 1220	World Religions
	or MATH 1330 Trigonometry		or REL 2000	Introduction To Religion
	or MATH 1340 College Algebra And Trigonometry		or REL 2310	Old Testament/Tanakh
	or MATH 1730 Calculus with Applications to Business and Finance		or REL 2330	New Testament History And Ideas
	or MATH 1750 Calculus For The Life Sciences With Applications I		or THR 1100	Introduction To Theatre
	or MATH 1850 Single Variable Calculus I			
	or MATH 2600 Introduction To Statistics		<b>D. Social and Behavioral Sciences</b> <b>6</b>	
	or MATH 2640 Statistics for Applied Science		ANTH 1020	Introduction To Anthropology
<b>C. Arts and Humanities</b>		<b>6</b>		
ART 1110		3	or ANTH 2020	Introduction To Archaeology
	or AFST 1100 Introduction To Africana Studies		or ANTH 2750	World Archaeology
	or AFST 2220 History Of Jazz		or ANTH 2800	Cultural Anthropology
	or ARTH 1500 Art In History		or ANTH 2900	African American Culture
	or ENGL 1130 College Composition II: Academic Disciplines And Discourse		or ECON 1010	Introduction To Economic Issues
	or ENGL 2950 Technical Writing		or ECON 1150	Principles Of Macroeconomics
	or ENGL 2960 Professional and Business Writing		or ECON 1200	Principles Of Microeconomics
	or ENGL 2710 Reading Fiction		or GEPL 1010	People, Places, and Society
	or ENGL 2720 Reading Drama		or GEPL 1100	Environmental Sustainability
	or FILM 1310 Introduction To Film		or LST 2800	
	or HIST 1010 Europe To 1600		or LST 2640	Race, Class, And Gender
	or HIST 1020 Europe From 1600		or PSC 1200	American National Government
	or HIST 1050 World History To 1500		or PSY 1010	Principles Of Psychology
	or HIST 1060 World History From 1500		or SOC 1010	Introduction To Sociology
	or HIST 1070 The Contemporary World		or SOC 1020	Social Problems
	or HIST 1080		or SOC 2500	Women's Roles: A Global Perspective
	or HIST 1090 East Asia From 1800		or SOC 2640	Race, Class, And Gender
	or HIST 1100 Latin American Civilizations		or SOC 2900	African American Culture
	or HIST 1110 African Civilization		or WGST 2400	Women's Roles: A Global Perspective
	or HIST 1120 Middle East Civilization		or WGST 2640	Race, Class, And Gender
	or HIST 2010 America To 1865		<b>E. Natural Sciences</b> <b>6</b>	
	or HIST 2020 America From 1865		ASTR 1010	Survey Of Astronomy
	or HIST 2040			
	or HIST 2050 Ancient Greece		or BIOL 1120	Survey Of Biology
	or HIST 2060 Ancient Rome		or BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation
	or HON 2020 Multicultural Literatures: The North American Experience-Honors-WAC		or BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance
	or HON 2030 Multicultural Literatures: The Non-European World-Honors-WAC		or CHEM 1100	Chemistry And Society
	or MUS 2250 Musical Diversity In The United States		or CHEM 1120	Chemistry For Health Sciences
	or MUS 2210 Introduction To Music		or CHEM 1230	General Chemistry I
	or MUS 2220 History Of Jazz		or CHEM 1240	General Chemistry II
	or MUS 2420 Cultures And Music Of Non-Western Styles		or EEES 1010	Physical Geology
			or EEES 1130	Down To Earth: Environmental Science
			or EEES 2150	Biodiversity
			or EXSC 2560	Anatomy and Physiology I
			or PHYS 1100	Our Physical World - Matter & Energy
			or PHYS 1750	Introduction To Physics
			or PHYS 2070	General Physics I
			or PHYS 2130	Physics For Science And Engineering Majors I



F. Natural Science Lab		
ASTR 2050	Elementary Astronomy Laboratory	1
or BIOL 1220	Survey Of Biology Laboratory	
or BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	
or BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	
or CHEM 1150	Chemistry And Society Laboratory	
or CHEM 1280	General Chemistry Lab I	
or CHEM 1290	General Chemistry Lab II	
or EEES 1020	Introductory Geology Laboratory	
or EEES 1140	Environmental Solutions Laboratory	
or EEES 1180	Marine Biology Coral Reef Lab	
or EEES 2160	Biodiversity Laboratory	
or EXSC 1460	Fundamentals of Anatomy and Physiology Lab	
or EXSC 2460	Human Anatomy And Physiology I Lab	
or EXSC 2520	Human Anatomy Lab	

**II. Select 12 hours of Arts and Letters Exploration Foundation Courses from the Distributive Areas Below 12**

**A. Written Communication**

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
or ENGL 2950	Technical Writing	
or ENGL 2960	Professional and Business Writing	

**B. History**

HIST 1010	Europe To 1600	3
or HIST 1020	Europe From 1600	
or HIST 1050	World History To 1500	
or HIST 1060	World History From 1500	
or HIST 1070	The Contemporary World	
or HIST 1080		
or HIST 1090	East Asia From 1800	
or HIST 1100	Latin American Civilizations	
or HIST 1110	African Civilization	
or HIST 1120	Middle East Civilization	
or HIST 1130	Introduction To Historical Thinking	
or HIST 1200		
or HIST 2000	Methods Seminar - WAC	
or HIST 2010	America To 1865	
or HIST 2020	America From 1865	
or HIST 2030	Great Americans	
or HIST 2040		
or HIST 2040		
or HIST 2050	Ancient Greece	
or HIST 2060	Ancient Rome	

**C. Arts and Letters Skills courses to be selected from the following areas: 6**

U.S. or Non-U.S. designated Diversity courses	
Humanities	
Fine or Performing Arts	

Social Sciences

World Language and Culture <sup>1</sup>	
<b>III. GENERAL ELECTIVES 24</b>	

*An additional 24 semester hours of classes chosen by the student to support transfer to a Baccalaureate degree program, or fulfill personal interests. Students may elect to enroll for entry-level classes in the major of choice or fulfill program pre-requisites through the completion of these hours. Students are advised to select options from the Arts and Letters disciplines below.*

**A. Humanities**

English Language and Literature, History, Philosophy, Religious Studies, World Languages and Culture

**B. Fine and Performing Arts**

Visual Art, Art History, Film, Music, Theatre

**C. Social Sciences**

Anthropology, Communication, Economics, Geography and Planning, Political Science, Psychology, Sociology, Women and Gender Studies

**D. Interdisciplinary Programs**

Africana Studies, Asian Studies, Data Analytics, Disability Studies, Global Studies

<sup>1</sup> Students who wish to pursue a B.A. degree in Arts and Letters should be aware of the college requirement to 1) present the 2150 level proficiency by completion of Language 2150 or by placement test results or 2) 1120 level proficiency plus 2 cultures courses or 3) complete one semester in a study abroad program. While language and culture courses may considered as electives for the AA degree, they are specifically required for the BA

First Term	Hours
ENGL 1110 College Composition I	3
or ENGL 1010 or College Composition 1 Co-Requisite	
General Education Social and Behavioral Sciences	3
General Education Mathematics	3
Arts and Letters Skills elective	3
General Education Natural Science	3
<b>Hours</b>	<b>15</b>
Second Term	Hours
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
or ENGL 2950 or Technical Writing	
or ENGL 2960 or Professional and Business Writing	
Arts and Letters Skills elective	3
General Education Natural Science with lab	3
General Education Social and Behavioral Sciences	3
General Elective <sup>2</sup>	3
<b>Hours</b>	<b>15</b>
Third Term	Hours
History	3
Arts and Letters Exploratory Foundation elective	6
General Elective	6
<b>Hours</b>	<b>15</b>



**Fourth Term**

General Elective	15
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>60</b>

- Communication: UT students must demonstrate abilities to communicate meaningfully, persuasively and creatively with different audiences through written, oral, numeric, graphic and visual modes.
- Personal, Social, and Global Responsibility: UT students must demonstrate understanding of and critical engagement in ethical, cultural and political discourse and capacity to work productively as a community member committed to the value of diversity, difference and the imperatives of justice.
- Critical Thinking and Integrative Learning: UT students must be able to integrate reasoning, questioning and analysis across traditional boundaries of viewpoint, practice and discipline.
- Scientific and Quantitative Reasoning and Literacy: UT students must demonstrate the capacity to apply mathematical reasoning and scientific inquiry to diverse problems.
- Information Literacy: UT students must demonstrate the ability to find, organize, critically assess and effectively use information to engage in advanced work in a challenging field of study. Students should demonstrate responsible, legal, creative and ethical use of information.

## Africana Studies Program Interdisciplinary Major

Angela M. Siner, Director and Advisor

The program seeks to promote greater understanding of the historical, cultural, and socio-economic developments in the black community, nationally and globally. Africana studies undergraduates take classes across disciplines. This is an excellent program for students who are intellectually curious and passionate about social justice and community activism.

### Degrees Offered

- B.A. in Africana Studies (p. 194)
- Minor in Africana Studies (p. 194)

**AFST 1100 Introduction To Africana Studies**

[3 credit hours]

Introductory survey of basic theoretical concepts to analyze the Black experience, with special focus on the general historical process common to the African Diaspora (Africa, Caribbean and the Americas - South, Central and North, especially the USA.)

**Term Offered:** Spring, Summer, Fall  
Multicultural US Diversity

**AFST 1200 Introduction To The African Experience**

[3 credit hours]

Introduction to the African experience through case studies of critical historical experiences: origin of humanity, origin of civilization, empire and traditional society.

**Term Offered:** Spring, Summer, Fall  
Multicultural Non-US Diversity

**AFST 2100 Foundations Of Black Intellectual History**

[3 credit hours]

An examination of slavery and colonialism in the intellectual history of the African Diaspora, especially in the work of W.E.B. Dubois, C.L.R. James and Kwame Nkrumah.

**Prerequisites:** AFST 1100 with a minimum grade of D- or AFST 1200 with a minimum grade of D-  
**Term Offered:** Spring  
Multicultural US Diversity

**AFST 2220 History Of Jazz**

[3 credit hours]

A study of the development of jazz styles including listening skills and historical perspectives. Because the major innovations and stylistic interpretations of jazz are a result of African Americans, the course includes a study of how their culture influenced the development of jazz. Students may take P/NC.

**Term Offered:** Spring, Summer, Fall  
Core Arts & Humanities, Multicultural US Diversity, OT36 Arts and Humanities

**AFST 2660 African Politics**

[3 credit hours]

The character and development of African political institutions and processes with a special emphasis on patterns in the post-independence period and prospects for the future.

**Term Offered:** Spring, Summer, Fall  
Multicultural Non-US Diversity

**AFST 3600 Entrepreneurship and the Black Community**

[3 credit hours]

Explores the gap between entrepreneurial aspirations and the actual entrepreneurial enterprises in the black community. Examines the subject in a socio'historical context. Diverse sociological perspectives, methodologies and analyses are employed. Student would need 3 hours of Soci-Science or 3 hours of AFST.

**Term Offered:** Spring, Fall  
Multicultural US Diversity

**AFST 3700 African Women & the Environment**

[3 credit hours]

Overview of empirical evidence and interpretive models of African women with reference to environment. Specific topics: African women managing natural resources; implications of climate change in Africa; ecology and feminism. Student will need 3 hours of Soci-Science or 3 hours of AFST.

**Term Offered:** Spring, Fall

**AFST 3800 Ecotourism: Studies of the Africana World**

[3 credit hours]

Introduce students to the field of ecotourism studies and specific challenges of community development and sustainability. The course covers ecotourism in the Africana world of Africa, the Caribbean, and Latin America.

**Term Offered:** Spring, Fall



**AFST 3900 Perspectives on African American Education**

[3 credit hours]

Covers the history and cultural heritage of African Americans and an in-depth knowledge of experiences of African American student populations in preparation for a variety of career fields, including education, social work, criminal justice, business, nursing, and other professions. Examines key debates and policy proposals to better understand current issues impacting African American student populations. U.S. Diversity

**Term Offered:** Spring, Fall

Multicultural US Diversity

**AFST 4660 African American Literature In The 20th and 21st Century**

[3 credit hours]

A course focused on 20th and 21st century African American poetry, fiction, nonfiction, and drama.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**AFST 4900 Senior Seminar**

[3 credit hours]

General theoretical synthesis of the field focusing on a close reading of a recent biographical work of intellectual history, a recent work of cultural criticism and a recent work of social analysis.

**Term Offered:** Spring, Summer, Fall**AFST 4910 Directed Research**

[1-6 credit hours]

Student selected research topic under the supervision of faculty member and the Director of Africana Studies. Permission to enroll is contingent on a written proposal by the student being accepted by the two sponsoring faculty.

**Term Offered:** Spring, Summer**AFST 4920 Directed Readings**

[1-6 credit hours]

For advanced students wishing to read a specialized literature in the field. Requires a written proposal approved by faculty and Director of the Program.

**Prerequisites:** AFST 1100 with a minimum grade of D- or AFST 1200 with a minimum grade of D-

**AFST 4980 Special Topics In Africana Studies**

[3 credit hours]

Discussion of a substantial issue in scholarly research or public discourse relative to the African Diaspora. May be repeated for different issues. Maximum number of hours for AFST 4980 should not exceed 9 semester hours.

**Term Offered:** Spring, Summer, Fall

## Honors in Africana Studies

Majors in Africana Studies are strongly encouraged to pursue program honors. In order to earn program honors, the student must:

1. Have a minimum AFST GPA of 3.3 and a minimum cumulative GPA of 3.0.
2. Submit two papers from different, advanced AFST courses to Program Director. These courses will also satisfy the AFST elective or upper division seminar requirements.
3. Write a thesis or complete a service-learning project under the direction of an AFST-affiliated faculty member. Students must enroll

in Honors Thesis in AFST. Participation in the University Honors College is not required for those seeking program honors.

4. Honors Thesis AFST (3 hours) will count as an elective course in the required courses for the major.

## Minor in Africana Studies

To earn a minor in African studies, students must complete a total of 21 hours of course work in Africana studies: 9 hours of required courses in Africana Studies, and an additional 12 hours of advanced courses at the 3000/4000 level in Africana Studies.

Code	Title	Hours
<b>Required Courses</b>		
AFST 1100	Introduction To Africana Studies	3
AFST 1200	Introduction To The African Experience	3
	or AFST 2100 Foundations Of Black Intellectual History	
AFST 2300		3
<b>Advance Courses</b>		
With the approval of the program adviser, select a minimum of 12 hours of coursework at the 3000/4000 level in Africana Studies		12
<b>Total Hours</b>		<b>21</b>

## B.A. in Africana Studies

A major in Africana Studies consists of a minimum of 33 hours of coursework, 15 required hours of Africana Studies and an additional 18 elective hours, at least 15 of which must be at the 3000/4000 level. Students can choose from the following subjects to fulfill the 15 required hours of the Africana Studies major.

Code	Title	Hours
<b>Required Courses</b>		
AFST 1100	Introduction To Africana Studies	3
AFST 1200	Introduction To The African Experience	3
	or AFST 2100 Foundations Of Black Intellectual History	
AFST 2300		3
AFST 3500		3
	or AFST 3600 Entrepreneurship and the Black Community	
AFST 4900	Senior Seminar	3
<b>Course Work in Related Disciplines</b>		
Select 18 elective hours		18
<b>Total Hours</b>		<b>33</b>

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

First Term		Hours
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
AFST 1100	Introduction To Africana Studies	3
Natural Sciences Core		3
Natural Science Core (Lab)		1

Elementary Foreign Language I	4
<b>Hours</b>	<b>15</b>
<b>Second Term</b>	
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
HIST 1010-HIST 1200 Arts/Humanities Core (History)	3
MATH 1180 Reasoning With Mathematics	3
Elementary Foreign Language II	4
Natural Sciences Core	3
<b>Hours</b>	<b>16</b>
<b>Third Term</b>	
AFST 1200 Introduction To The African Experience or AFST 2100 or Foundations Of Black Intellectual History	3
Arts/Humanities Core (Fine Art)	3
Social Sciences Core	3
Intermediate Foreign Language I or culture course	3
Elective	3
<b>Hours</b>	<b>15</b>
<b>Fourth Term</b>	
AFST 2300	3
ENGL 2710-2800 Arts/Humanities Core (English Lit)	3
Intermediate Foreign Language II or culture course	3
Social Sciences Core	3
Arts/Humanities Core	3
<b>Hours</b>	<b>15</b>
<b>Fifth Term</b>	
AFST 3500 or AFST 3600 or Entrepreneurship and the Black Community	3
AFST Major Elective	3
Related or Minor course	3
Elective	6
<b>Hours</b>	<b>15</b>
<b>Sixth Term</b>	
AFST 3000-AFST Major Elective (WAC) 4000	3
AFST 3000-AFST Major Elective 4000	3
Related or Minor course	6
Elective	3
<b>Hours</b>	<b>15</b>
<b>Seventh Term</b>	
AFST 4920 Directed Readings	3
AFST 3000-AFST Major Elective 4000	3
AFST 3000-AFST Major Elective 4000	3
Related or Minor course	3
Elective (WAC)	3

Elective	3
<b>Hours</b>	<b>18</b>
<b>Eighth Term</b>	
AFST 4900 Senior Seminar	3
AFST 4910 Directed Research	3
AFST 3000-AFST Major Elective 4000	3
AFST3000-AFST Major Elective 4000	3
Elective	3
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>124</b>

- PLO 1: Demonstrate the ability to organize knowledge at a level of sophistication as well as persuasively communicate the value of a strong liberal arts education.(Broad Integrative Knowledge)
- PLO 2: Demonstrate the ability to organize knowledge at a level of sophistication as well as persuasively communicate the value of a strong liberal arts education.(Broad Integrative Knowledge)

## Asian Studies Program Interdisciplinary Major

An Chung Cheng, Director and Adviser

### Degrees Offered

- B.A. in Asian Studies (p. 196)
- Minor in Asian Studies (p. 197)

#### ASST 2100 Introduction to Asian Studies

[3 credit hours]

Introduction to Asian studies will introduce students to important facet of Asian countries including their culture, historical and modern, social and economic systems. Students will learn the cultural bases of Asian countries or regions. The course will be an integral part of the education of those majoring or minoring in Asian Studies.

**Term Offered:** Spring, Fall  
Multicultural Non-US Diversity

#### ASST 3010 Issues in Asian Studies

[3 credit hours]

The course covers various topics in Asian Studies, from some specific topics such as Buddhism to the general area of Asian culture. The particular topic may vary depending on the areas of the instructor and the academic interest of the students. It can also serve various topics offered in the study-abroad program.

**Term Offered:** Spring, Summer, Fall  
Multicultural Non-US Diversity

#### ASST 4910 Directed Research

[1-4 credit hours]

Directed research on a specific topic in Asian Studies. The topic will vary on the instructor and the interest of student in the field.

**Term Offered:** Spring, Summer, Fall



**ASST 4920 Directed Readings**

[1-4 credit hours]

Directed readings in Asian Studies of various natures or special topics in Asian Studies. The topic may vary depending on the areas of the instructor and the academic interest of the students.

**B.A. in Asian Studies**

An Chung Cheng -- Program Advisor

This program is designed to provide the student with a comprehensive and systematic training in Asian affairs for a liberal education and career preparation. Emphasis is placed on political science, economics, history, geography, Asian languages, etc. In addition to academic courses, activities in the Institute for Asian Studies conducted through the Center for International Studies and Programs include lectures, seminars, and study abroad programs in Asia as well as selected exchanges in the region.

In addition to the general education requirements of the University of Toledo and the College of Arts and Letters, students will take 30 hours in Asian Studies selected from (but not limited to) the list of courses below. Students must select courses from a minimum of three different departments; no more than 15 hours of course work from one department will count toward the Asian Studies major.

Code	Title	Hours
<b>Major Courses</b>		
Select 30 hours of the following:		30
ASST 2100	Introduction to Asian Studies	
ASST 3010	Issues in Asian Studies	
ASST 4910	Directed Research	
ASST 4920	Directed Readings	
ASST 4980		
ARTH 2100		
ARTH 3250	Topics In Asian Art	
ECON 3500	Comparative Economic Systems	
GEPL 3120	Geography Of Asia	
HIST 2700	Japan And World War II	
HIST 2710	Postwar Japan	
HIST 2720		
HIST 2730	The Chinese Revolution	
HIST 4720	Modern Chinese History	
HIST 4740	Modern Japanese History	
HIST 4750		
PHIL 3500	Eastern Thought	
PSC 4900	Politics of Asia	
All Japanese and Chinese courses above the 2000 level		
<b>Total Hours</b>		<b>30</b>

With the approval of the adviser, a maximum of six elective hours may be chosen from independent study courses offered by various departments (other than ASST 4910 and ASST 4920). This general distributive pattern is designed to encourage the student to examine the various aspects of

Asian Studies. Asian Studies majors are encouraged to take Japanese, (or Chinese or other Asian languages, if offered) for their foreign language requirement.

In addition to the 30 hours in the major, students are required to take 18 hours in related courses in humanities, social sciences, natural sciences, business, law and other areas chosen in consultation with the adviser. Under special circumstances, certain courses in other colleges may be used to satisfy the related requirement.

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

<b>First Term</b>		<b>Hours</b>
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
ASST 2100	Introduction to Asian Studies	3
JAPN 1110	Elementary Japanese I	4
or CHIN 1110	or Elementary Chinese I	
Social Sciences Core		3
<b>Hours</b>		<b>17</b>
<b>Second Term</b>		
JAPN 1120	Elementary Japanese II	4
or CHIN 1120	or Elementary Chinese II	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HIST 1070	The Contemporary World	3
ARTH 2100	Non-US Diversity	3
Natural Sciences Core		3
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
HIST 2700	Japan And World War II	3
or HIST 2710	or Postwar Japan	
HIST 2730	The Chinese Revolution	3
JAPN 2140	Intermediate Japanese I (or approved culture course)	3
or CHIN 2140	or Intermediate Chinese I	
ENGL 2710-2800	Arts/Humanities Core (English Lit)	3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
JAPN 2150	Intermediate Japanese II (or approved culture course)	3
or CHIN 2150	or Intermediate Chinese II	
GEPL 2030	Cultural Geography (WAC)	3
CHIN 1090	Chinese Culture	3
Social Sciences Core		3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
ASST 3010	Issues in Asian Studies	3

GEPL 3120	Geography Of Asia	3
BUAD 2080	Global Environment Of Business	3
Major Elective		3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
PHIL 3500	Eastern Thought	3
GEPL 3120	Geography Of Asia	3
ECON 3500	Comparative Economic Systems	3
Related or Minor course		3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
HIST 4720/4740	Modern Chinese History	3
ASST 4920	Directed Readings	3
Major Elective		3
Elective		3
Diversity of U.S.		3
<b>Hours</b>		<b>15</b>
<b>Eighth Term</b>		
ASST 4910	Directed Research	3
ASST 4980		3
Related or Minor course		3
Elective		6
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>124</b>

- PLO 1: Communication objectives: Students can interpret oral and written texts, present information, and participate in spontaneous spoken and writing exchanges on relevant topics in one of the major languages in Asia, including Chinese, Japanese. In their own and Asian cultures, students can compare and explain some diversity among products and practices and how it relates to perspectives.
- PLO 2: Content objectives: Students can demonstrate their knowledge of the history, culture, economies, societies, and political systems of Asia and main Asian countries. Students can investigate underlying assumptions, describe inequalities and power dynamics, and critically assess how power dynamics affect the voice, influence, access to resources, decision-making, and governance.
- PLO 3: Global community objectives: Students can investigate, explain, and reflect on culture exchanges between selected Asian countries and the U.S. Students can initiate investigations of Asia by framing questions, analyzing and synthesizing relevant evidence, and drawing reasonable conclusions about Asian and global issues.

## Minor in Asian Studies

Note: If a student enters UT with enough prior proficiency in an Asian language beyond the 2000 level, then to complete the minor, the student will need to enroll in 6 hours of 3000-level or above language courses or 6 hours of i courses in a different Asian language, based on the placement test.

Code	Title	Hours
<b>Required courses</b>		
ASST 2100	Introduction to Asian Studies	3
ASST 3010	Issues in Asian Studies	3
<b>Language Requirement</b>		<b>6</b>
Arabic, Chinese or Japanese at the 2000 level or above <sup>1</sup>		
<b>Major Electives: choose two courses from below</b>		<b>6</b>
ARTH 2100		
ARTH 3250	Topics In Asian Art	
GEPL 2030	Cultural Geography	
GEPL 3120	Geography Of Asia	
HIST 2700	Japan And World War II	
HIST 2710	Postwar Japan	
HIST 2720		
HIST 2730	The Chinese Revolution	
HIST 4720	Modern Chinese History	
HIST 4740	Modern Japanese History	
IBUS 3150	Understanding Cultural Differences For Business	
IBUS 4360	Global Business	
IBUS 3600	International Management	
MKTG 3140	International Marketing	
PSC 3150	Research and Writing in Political Science	
PSC 4900	Politics of Asia	
PHIL 3500	Eastern Thought	
REL 2500	Islam	
REL 3500	Eastern Thought	
ASST, ARBC CHIN, JAPN or FLAN courses at 3000 or 4000 level with Advisor's Approval.		
Other courses related to Asian Studies, including study abroad programs, with Advisor's approval.		
<b>Total Hours</b>		<b>18</b>

<sup>1</sup> If a student enters UT with enough prior proficiency in an Asian language beyond the 2000 level, then to complete the minor, the student will need to enroll in 6 hours of 3000-level or above language courses or 6 hours of courses in a different Asian language, based on the placement test.

- PLO 1. Communication objectives: Students are able to interpret oral and written texts, present information and participate in spontaneous spoken and writing exchange on relevant topics in one of the major languages in Asia (e.g., Arabic, Chinese, Japanese). In their own and Asian cultures, students can compare and explain diverse cultural products and practices and how they relate to perspectives at a basic level.
- PLO 2. Content objectives: Students are able to demonstrate their knowledge of the arts, history, culture, religion, philosophy, economies, society, and politics of a selected country or a region in Asia. Students can investigate underlying assumptions, describe inequalities and power dynamics, and critically assess the ways in which power dynamics affect voice, influence, access to resources, decision-making, and governance.

- PLO 3. Global community objectives: Students are able to investigate, explain, and reflection on culture exchanges between selected Asian countries and the U.S. Student can initiate investigations of the Asia by framing questions, analyzing and synthesizing relevant evidence, and drawing reasonable conclusions about Asian and global issues.

## Data Analytics Programs

Faculty Advisor, major in Data Analytics: Dr. Kevin Egan, Department of Economics

Faculty Advisor, minor in Data Analytics: Dr. Dan Hammel, Department of Geography and Planning

The analysis of big data requires people trained in the social sciences who can effectively develop and utilize the data that they are able to access. Analysts need to understand how people think and behave and interpret data in relation to that human element.

Given this, the College of Arts and Letters is able to provide a unique undergraduate program in data analytics through our social science curriculum and faculty strengths. In this major, you will develop the quantitative and methodological skills to employ analytical techniques, work with big data sets, and make sense of analytical results within the framework of social and cognitive behaviors and population trends.

- B.A. in Data Analytics (p. 198)
- Minor in Data Analytics in Social Science (p. 199)

## B.A. in Data Analytics

Faculty Advisor: Dr. Kevin Egan, Economics

The analysis of big data requires people trained in the social sciences who can effectively develop and utilize the data that they are able to access. Analysts need to understand how people think and behave, and interpret data in relation to that human element.

Given this, the College of Arts and Letters is able to provide a unique undergraduate program in data analytics through our social science curriculum and faculty strengths. In this major, you will develop the quantitative and methodological skills to employ analytical techniques, work with big data sets, and make sense of analytical results within the framework of social and cognitive behaviors and population trends.

Code	Title	Hours
DANN 2000	Proseminar in Data Analytics I	1
DANN 4000	Proseminar in Data Analytics II	2
Choose one of the following:		3
PSY 2100	Statistical Methods	
SOC 3290	Social Statistics	
GEPL 4420	Quantitative Methods in Geographic Research	
Choose one of the following:		3
PSY 3110	Research Methods In Psychology	
PSC 3150	Research and Writing in Political Science	
SOC 3270	Social Research Methods	
Following six course are required		
ECON 2810	Introduction to Econometrics	3

ECON 3810	Applied Econometrics	3
or ECON 3300	BENEFIT-COST ANALYSIS	
GEPL 4110	Geographic Information Systems	3
CSET 1100	Introduction to Computer Science and Engineering Technology	4
CSET 3300	Database-Driven Web Sites	4
ART 2800	Visual Literacy-Data Visualization	3
Choose one of the following		3
PSC 3250	Public Opinion	
PSY 3750	Science and Pseudoscience	
Choose one of the following		3
PHIL 3140	Computers And Culture	
PHIL 3160	Data Science Ethics	

This major calls for specific courses to be taken to fulfill the 18 credit related category. Within that category for DAAN majors, an area of concentration is required in one of the following subjects: Economics, Geography and Planning, Political Science and Public Administration, Psychology, Sociology or Anthropology. Alternatively, this requirement can also be satisfied through earning a minor in an approved social science. Consult with the program advisor when selecting courses to fulfill this requirement.

First Term		Hours
AR 1000	First Year Orientation	1
MATH 1180	Reasoning With Mathematics	3
ENGL 1110	College Composition I	3
CSET 1100	Introduction to Computer Science and Engineering Technology	4
Arts/Humanities Core		3
Social Sciences Core		3
<b>Hours</b>		<b>17</b>

Second Term		Hours
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
DANN 2000	Proseminar in Data Analytics I	1
Natural Sciences Core		3
Social Sciences Core		3
Diversity of US		3
Social Sciences Core (History)		3
<b>Hours</b>		<b>16</b>

Third Term		Hours
PSY 2100	Statistical Methods	3
ART 2800	Visual Literacy-Data Visualization	3
ENGL 2710	Reading Fiction	3
Elementary Foreign Language I		4
Non#US Diversity		3
<b>Hours</b>		<b>16</b>

Fourth Term		Hours
ECON 2810	Introduction to Econometrics	3
CSET 3300	Database-Driven Web Sites	4
PSY 3110	Research Methods In Psychology	4

Elementary Foreign Language II	4
<b>Hours</b>	<b>15</b>
<b>Fifth Term</b>	
GEPL 4110 Geographic Information Systems	3
ECON 3810 Applied Econometrics or ECON 3300 or BENEFIT-COST ANALYSIS	3
PSC 3250 Public Opinion	3
Intermediate Foreign Language I or approved culture course	3
Related Concentration Elective or minor course	3
<b>Hours</b>	<b>15</b>
<b>Sixth Term</b>	
PHIL 3160 Data Science Ethics	3
Intermediate Foreign Language II or approved culture course	3
Related Concentration Elective or minor course	6
Arts/Humanities Core (Fine Art)	3
<b>Hours</b>	<b>15</b>
<b>Seventh Term</b>	
Related Concentration Elective or minor course	6
Electives	6
<b>Hours</b>	<b>12</b>
<b>Eighth Term</b>	
DANN 4000 Proseminar in Data Analytics II	2
Natural Sciences Core & Lab	4
Related Concentration Elective or minor course	3
Electives	5
<b>Hours</b>	<b>14</b>
<b>Total Hours</b>	<b>120</b>

- PLO 1. Students will learn and apply skills in multivariate statistical analysis to social science data.
- PLO 2. Students will construct databases and learn to manipulate them with various techniques to use the data to answer their quantitative question of interest.
- PLO 3. Students will describe and evaluate various social and ethical issues related to the use of data analytics.
- PLO 4. Students will summarize and assess the importance of social context in analyzing social data.
- PLO 5. Students will recognize the strengths and limitations of quantitative analysis of social phenomenon.
- PLO 6. Students will effectively communicate the importance of their data analysis through written work and/or oral presentations.

## Minor in Data Analytics in Social Science

Code	Title	Hours
Choose one:		3
SOC 3290	Social Statistics	
PSY 2100	Statistical Methods	
GEPL 4420	Quantitative Methods in Geographic Research	

Choose one:		3
		or
		4
SOC 3270	Social Research Methods	
PSC 3150	Research and Writing in Political Science	
PSY 3110	Research Methods In Psychology	
DANN 2000	Proseminar in Data Analytics I	1
PHIL 3160	Data Science Ethics	3
GEPL 4110	Geographic Information Systems	3
or GEPL 4180	Geographic Information Systems Applications	
ECON 2810	Introduction to Econometrics	3
DANN 4000	Proseminar in Data Analytics II	2
<b>Total Hours</b>		<b>18-19</b>

- PLO 1. Students will learn and apply skills in multivariate statistical analysis to social science data.
- PLO 2. Students will construct databases, learn to manipulate them and to use the data to ask questions of interest.
- PLO 3. Students will describe and evaluate various social and ethical issues related to the use of data analytics.
- PLO 4. Students will summarize and assess the importance of social context in analyzing social data.
- PLO 5. Students will recognize the strengths and limitations of quantitative analysis of social phenomenon.
- PLO 6. Students will effectively communicate the importance of their data analysis through written work and/or oral presentations.

## Disability Studies Program Interdisciplinary Program

Kim Nielsen, Chair  
Ally Day, Advisor

### BA to MBA program

Students interested in completing both the BA in Disability Studies and an MBA in 5 years should meet with the Director of Disability Studies in their first year. Students admitted into this program complete their BA in Disability Studies with a minor in Business by the end of their 7<sup>th</sup> semester, and complete the MBA in three additional semesters.

## Degrees Offered

- B.A. in Disability Studies (p. 201)
- Disability Studies Minor (p. 203)

### DST 2020 Introduction to Disability Studies

[3 credit hours]

An overview of the key debates, conversations, and ideas about disability in the United States. This course features perspectives from the social sciences on topics such as activism, representation, society, and culture.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity



**DST 2980 Special Topics in Disability Studies**

[1-4 credit hours]

Special topics in Disability Studies. Topics vary by instructor; may be repeated for credit.

**Term Offered:** Spring, Fall**DST 3030 Disability Culture**

[3 credit hours]

An interdisciplinary exploration of the history and culture of disability, including the issues of stigmatizing and stereotyping, communication barriers and breakthroughs, educational segregation and mainstreaming and the experience of "passing."

**Term Offered:** Spring, Summer, Fall**DST 3040 Disability, Technology, and Society**

[3 credit hours]

Interdisciplinary investigation of the relationship between disability and technology, focusing on the social and political dimensions of designing and using technology with, for, and by disabled people.

**Term Offered:** Spring, Summer, Fall**DST 3060 U.S. Disability History**

[3 credit hours]

This course provides a historical overview of the lived experiences of people defined as disabled and changing historical definitions of disability in the region that became the United States of America. We will consider how major historical forces such as capitalism, industrialization, colonialism, and democratic ideals have impacted and been shaped by people with disabilities.

**Term Offered:** Spring, Fall**DST 3090 Disability in American Literature**

[3 credit hours]

Disability In American Literature addresses a wide range of contemporary literary productions, including novels, graphic novels, plays, short stories, poetry, memoir, and personal essays, connecting these productions to an American literary genealogy and recognizing the deployment and resistance to ableism in American Literature. At the course's conclusion, students will be able to understand how literature interacts with cultural stereotypes, ultimately understanding how literature can be utilized for disability justice and social change.

**Term Offered:** Spring, Summer, Fall**DST 3100 Disability and Chronic Illness**

[3 credit hours]

This course investigates the relationship between chronic illness and disability, asking questions such as: Is chronic illness itself a disability? Does chronic illness cause disability? How do the social and medical models of disability affect our understanding of chronic illness? The course uses interdisciplinary texts (investigative journalism, memoir and literary nonfiction, philosophy, history, political science) to interrogate causes, treatments, cures and non-cures for people living with chronic illness.

**Term Offered:** Spring**DST 3250 Disability and Life Narratives**

[3 credit hours]

This course will examine a diverse selection of disability life narratives and consider what they reveal about disability and the dominant culture.

**Term Offered:** Spring, Fall**DST 3600 Feminist Health Humanities**

[3 credit hours]

This 15-week course will be taught from intersectional, feminist, health humanities perspectives. We will use the arts and culture in combination with humanistic social theory, to examine the following: gendered and racialized health disparities; gendered and racial constructions in the history of science/medicine; illness and disability life writing; biomedical ethics; the feminist health movement; grassroots community health organizing and feminist conceptualizations of wellbeing and radical self-care. Throughout the semester, there will be a sustained emphasis on health justice and the experiences of marginalized communities (women, people of color, the LGBTQ community, people with disabilities, etc.). Participants will leave the course more aware of important discussions in the health humanities and more fully prepared to apply inclusive knowledge practices within majors and career paths involving "health" – broadly defined. The course fulfills core curriculum requirements for Multicultural U.S. Diversity & Writing Across the Curriculum (WAC).

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**DST 3700 Disability and Communication**

[3 credit hours]

In this course we will explore several key communication aspects of disability in society. We will examine the rhetoric of disability, including the ways disability is conceptualized and talked about as well as the growth of disability movements; communication technology and disability; mass media and disability, including the ways the media portray people with disabilities and disability-related issues; and a number of other topics, including interpersonal communication issues around disability.

**Term Offered:** Spring, Fall**DST 3980 Special Topics in Disability Studies**

[1-4 credit hours]

Special topics in Disability Studies. Topics vary by instructor, may be repeated for credit.

**Term Offered:** Spring, Summer, Fall**DST 4000 Global Issues in Disability Studies**

[3 credit hours]

Special focus will be on global and contemporary issues as they arise in changing political and social environments. Geopolitical area of focus may vary based instructor expertise.

**Term Offered:** Fall**DST 4100 Disability and Sexuality**

[3 credit hours]

Utilizing a cultural studies approach, this course investigates complex questions of how someone becomes understood as abnormal in contemporary culture. The course looks at the disability justice and LGBTQA+ justice; trans studies and disability studies; public health and private rights. The course uses interdisciplinary texts including memoir and life writing, philosophy, history, public health and sexuality studies to address questions central to disability justice and lived experience.

**Term Offered:** Spring, Fall**DST 4200 Crip Arts, Crip Culture**

[3 credit hours]

This course explores disability art across media and considers its relationships both with disability culture and with the culture-at-large.

**Term Offered:** Spring



**DST 4300 Disability and Children's Literature - WAC**

[3 credit hours]

Disabled characters and disability themes abound in texts presented to young readers. This course explores the use of disabled characters in a variety of nonfiction and fiction for young through young-adult readers.

**Term Offered:** Spring, Fall

**DST 4400 Gender and Disability**

[3 credit hours]

This course examines gender and disability from both theoretical and lived perspectives, particularly as intersecting with other structures of power such as race, nationality, sexuality, and rights. Recommended: DST 2020, DST 3020.

**Term Offered:** Spring

**DST 4500 Asylums, Prisons and Total Institutions**

[3 credit hours]

Institutionalization has been a major factor in the daily experiences and understandings of disability in U.S. culture. This course will reevaluate all assumptions about institutions by analyzing when and why these spaces of containment and enclosure, such as prisons and institutions, arise. We will explore how disability and madness are defined, by whom, and for what purposes. The course concludes by analyzing how some ways activists and scholars combat traditional notions of crime, punishment, disability and incarceration.

**Term Offered:** Fall

**DST 4640 Disability Law and Human Rights**

[3 credit hours]

Explores the intersections between disability rights and human rights by examining the development, the ideological framework, and the legal contexts of disability law in the U.S. and global contexts. Recommended: DST 2020, 3020, 3030, or 3060.

**Term Offered:** Spring, Fall

**DST 4800 Autism and Culture**

[3 credit hours]

This course examines the ongoing construction of autism and the autism spectrum, exploring the many controversies around this remarkable range of human conditions.

**Term Offered:** Spring, Summer, Fall

**DST 4940 Internship In Disability Studies**

[3 credit hours]

This course is a service learning model internship with on-campus and/or community agencies addressing disability studies issues. Sites must be approved by the instructor.

**Prerequisites:** DST 2020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**DST 4950 Independent Study**

[1-4 credit hours]

Students engage in independent research projects with the supervision of a faculty member.

**Term Offered:** Spring, Summer, Fall

**DST 4960 Honors Thesis and Capstone Project**

[1-4 credit hours]

Independent study projects for students seeking departmental honors.

**Term Offered:** Spring, Summer, Fall

**DST 4980 Special Topics in Disability Studies**

[1-4 credit hours]

Special topics in Disability Studies. Topics vary by instructor; may be repeated for credit.

**Term Offered:** Spring, Fall

**DST 4990 Capstone in Disability Studies**

[3 credit hours]

Provides students with an opportunity to engage with professionals and professors in a seminar format for the intensive study of a topic related to Disability Studies. The focus of the seminar will change from year to year.

**Prerequisites:** DST 2020 with a minimum grade of D-

**Term Offered:** Spring, Fall

Qualified juniors and seniors are invited to work for the citation "honors in Disability Studies."

1. Admission: The Honors Program is open to all undergraduate Disability Studies majors whether or not they are enrolled in College Honors. Students who have shown superior ability in their freshman and sophomore years and who show promise of continuing good performance in the major should apply to the Disability Studies Program for enrollment in the DST Honors Program. Ordinarily, the student must have a minimum cumulative GPA of 3.0.
2. Requirements: To be awarded honors in Disability Studies, the student must complete a senior thesis and must take nine of the 33-hour major requirements in the honors and honors recognition courses offered by the department. Every regularly scheduled 3000- or 4000-level course can be given honors recognition by assigning readings and research in addition to the normal requirements of the course. To remain in the program, the student ordinarily must maintain a minimum GPA of 3.3 in the major.

## B.A. in Disability Studies

The major in Disability Studies (DST) consists of a minimum of 33 credit hours.

Code	Title	Hours
<b>Required Courses</b>		
DST 2020	Introduction to Disability Studies	3
Select one of the following:		3
DST 3030	Disability Culture	
DST 3060	U.S. Disability History	
DST 3040	Disability, Technology, and Society	
DST 3090	Disability in American Literature	
DST 4940	Internship In Disability Studies	3
DST 4990	Capstone in Disability Studies	3
<b>Electives</b>		
Select a minimum of 21 hours of the following:		21
DST 2410		
DST 2980	Special Topics in Disability Studies	
DST 3030	Disability Culture	
DST 3040	Disability, Technology, and Society	
DST 3060	U.S. Disability History	
DST 3090	Disability in American Literature	



DST 3250	Disability and Life Narratives
DST 3980	Special Topics in Disability Studies
DST 4200	Crip Arts, Crip Culture
DST 4400	Gender and Disability
DST 4500	Asylums, Prisons and Total Institutions
DST 4640	Disability Law and Human Rights
DST 4800	Autism and Culture
DST 4980	Special Topics in Disability Studies

**Related Course Work**

Select 18 credit hours

The required 18 hours or related course work should be chosen according to the student's interests and objectives. Selections should be made from 2000-level and higher courses in consultation with an advisor. Completion of a minor or of a second major in any department of the university also will be accepted as a completion of the Program's related course work requirement.

**Total Hours** 33

Below is a sample plan of study. Consult your degree audit for your program requirements.

<b>First Term</b>		<b>Hours</b>
AR 1000	First Year Orientation	1
DST 2020	Introduction to Disability Studies	3
ENGL 1110	College Composition I	3
	Elementary Foreign Language I	4
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>14</b>

<b>Second Term</b>		<b>Hours</b>
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
	Elementary Foreign Language II	4
	Select one of the following:	3
DST 3030	Disability Culture	
DST 3060	U.S. Disability History	
DST 3090	Disability in American Literature	
	Social Sciences Core	3
	Arts/Humanities Core (Fine Art)	3
<b>Hours</b>		<b>16</b>

<b>Third Term</b>		<b>Hours</b>
DST 3000-DST 4999	Major Elective	3
	Intermediate Foreign Language I or approved culture course	3
	Natural Sciences Core	3
	Natural Sciences Core (Lab)	1
ENGL 2710-2800	Arts/Humanities Core (English Lit)	3
HIST 1010-1200	Arts/Humanities Core (History)	3
<b>Hours</b>		<b>16</b>

<b>Fourth Term</b>		<b>Hours</b>
DST 3000-DST 4999	Major Elective	3

DST 3000-DST 4999	Major Elective	3
	Intermediate Foreign Language II or approved culture course	3
	Natural Sciences Core	3
	Social Sciences Core	3
<b>Hours</b>		<b>15</b>

<b>Fifth Term</b>		<b>Hours</b>
DST 3000-DST 4999	Major Elective	3
DST 3000-DST 4999	Major Elective	3
	Related or Minor course	6
	Elective (WAC)	3
<b>Hours</b>		<b>15</b>

<b>Sixth Term</b>		<b>Hours</b>
DST 3000-DST 4999	Major Elective	3
DST 3000-DST 4999	Major Elective	3
	Related or Minor course	3
	Elective 3000-4000 level	3
	Non-US Diversity	3
<b>Hours</b>		<b>15</b>

<b>Seventh Term</b>		<b>Hours</b>
DST 4940	Internship In Disability Studies	3
	Related or Minor course	6
	Elective 3000-4000 level	6
<b>Hours</b>		<b>15</b>

<b>Eighth Term</b>		<b>Hours</b>
DST 4990	Capstone in Disability Studies	3
	Related or Minor course	6
	Elective 3000-4000 level	5
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>120</b>

Total hours will vary based on electives selected but must be at least 120. Note that remedial courses or repeated courses will delay graduation beyond 8 semesters.

- PLO 1: Explain the contributions, experiences, history, and culture of people with disabilities regionally, nationally, and internationally.
- PLO 2: Explain disability as a sociocultural phenomenon and apply that analysis to historical and contemporary contexts.
- PLO 3: Critique representations of disability in media.
- PLO 4: Analyze the intersections among disability and sex/gender, race, nationality, religion, and sexuality in contemporary and historical discourse and policies.
- PLO 5: Develop and defend their own positions on issues regarding accessibility, disability, and contemporary social ideals.

- PLO 6: Evaluate social policies and programs regarding effects on people with disabilities, and design alternative policies/programs as necessary.
- PLO 7: Demonstrate effective writing and other communication skills.

## Disability Studies Minor

The minor in the Program of Disability Studies consists of 6 hours of required courses and at least 12 hours of upper-division electives chosen in consultation with the Disability Studies Program advisor.

Required Disability Studies Courses:

Code	Title	Hours
DST 2020	Introduction to Disability Studies	3
Select one of the following: 3		3
DST 3030	Disability Culture	
DST 3040	Disability, Technology, and Society	
DST 3060	U.S. Disability History	
DST 3090	Disability in American Literature	
Elective: Select a minimum of 12 hours:		12
DST 2410		
DST 2980	Special Topics in Disability Studies	
DST 3030	Disability Culture	
DST 3040	Disability, Technology, and Society	
DST 3060	U.S. Disability History	
DST 3090	Disability in American Literature	
DST 3250	Disability and Life Narratives	
DST 3700	Disability and Communication	
DST 3980	Special Topics in Disability Studies	
DST 4200	Crip Arts, Crip Culture	
DST 4400	Gender and Disability	
DST 4500	Asylums, Prisons and Total Institutions	
DST 4640	Disability Law and Human Rights	
DST 4800	Autism and Culture	
DST 4940	Internship In Disability Studies	
DST 4980	Special Topics in Disability Studies	
DST 3100	Disability and Chronic Illness	
DST 4000	Global Issues in Disability Studies	
DST 4100	Disability and Sexuality	
DST 4300	Disability and Children's Literature - WAC	
DST 4950	Independent Study	
DST 4990	Capstone in Disability Studies	
<b>Total Hours</b>		<b>18</b>

- PLO 1: Via an interdisciplinary curriculum, to ensure that all undergraduate majors and minors acquire and be able to demonstrate knowledge about the contributions, experiences, history, and culture of people with disabilities regionally, nationally, and internationally.
- PLO 2: To enable all undergraduate majors to explain disability as a sociocultural phenomenon and apply that explanation to historical and contemporary contexts.

- PLO 3: To enable students, via course materials and assignments, to research, develop, identify, and explain their own positions on issues regarding access, disability, and contemporary social ideals.
- PLO 4: To include the intersections between disability, gender, race, nationality, sex/gender, religion, and sexuality in course contents and analyses.
- PLO 5: To ensure that all undergraduate majors acquire and be able to demonstrate adequate writing and communication skills, demonstrated in writing intensive courses, a capstone course or senior thesis, and oral class presentations.
- PLO 6: To prepare students to apply knowledge of disability to their selected professional and civic lives, and explain those applications in course assignments.

## General Studies - B.A.

The Bachelor of Interdisciplinary Studies degree promotes interdisciplinary thinking and embraces diverse approaches to knowledge, while allowing students to select a core concentration area to specialize their interests within a field of inquiry. Students in this degree must declare one of the following concentrations: Africana Studies, Asian Studies, Disability Studies, General Studies; Sexuality Studies and Women and Gender Studies. In addition to completing the concentration, students should work with their advisor to select a related set of cognate courses for a total of 50 credits combined. Students must meet a minimum GPA average of 2.0 in a GPA calculation of the core concentration area.

Code	Title	Hours
<b>Africana Studies Concentration</b>		
A concentration in Africana Studies consists of a minimum of 33 hours of coursework, 12 credits of required hours of Africana Studies and an additional 21 elective hours, at least 15 of which must be at the 3000/4000 level.		
<b>Required</b>		<b>12</b>
AFST 1100	Introduction To Africana Studies	3
AFST 1200	Introduction To The African Experience	3
	or AFST 2100 Foundations Of Black Intellectual History	
AFST 3500		3
	or AFST 3600 Entrepreneurship and the Black Community	
AFST 4900	Senior Seminar	3
<i>Electives: Select from the categories below</i>		<i>21</i>
Africana Studies Electives:		
AFST 2100	Foundations Of Black Intellectual History	3
AFST 2200		3
AFST 2300		3
AFST 3600	Entrepreneurship and the Black Community	3
AFST 3800	Ecotourism: Studies of the Africana World	3
AFST 3900	Perspectives on African American Education	3
AFST 4910	Directed Research	1-6
AFST 4920	Directed Readings	1-6
AFST 4980	Special Topics In Africana Studies	3
Africana Studies in Arts and Humanities:		
ARTH 3300	African Art	



ENGL 2770	Ethnic American Literature
ENGL 3670	Literature of Diverse and Nonwhite Communities
ENGL 3770	World Literature And Cultures
ENGL 4650	African American Writers Before The 20th Century
ENGL 4660	African American Literature In The 20th and 21st Century
HIST 1110	African Civilization
HIST 3250	African-American History To 1865
HIST 3260	African-American History From 1865
HIST 3630	Africa To 1800
HIST 3640	Africa Since 1800
HIST 4110	Sports, Race, and Power in Apartheid South Africa
HIST 4430	Slavery In America
HIST 4980	Special Topics
MUS 2220	History Of Jazz
Africana Studies in Social and Behavioral Sciences:	
ANTH 3940	Peoples Of Sub-Saharan Africa
GEPL 2030	Cultural Geography
GEPL 3220	Geography Of Africa
PSC 2660	African Politics
PSC 3240	
PSC 3280	Race and American Politics
PSC 4660	Politics of Africa
PSY 3730	Stereotyping, Prejudice, & Discrimination
SOC 2640	Race, Class, And Gender
SOC 2660	Racial and Ethnic Minorities in the United States
SOC 2900	African American Culture
SOC 4800	
WGST 3600	Feminist Health Humanities

Code	Title	Hours
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**Asian Studies Concentration**

This concentration is designed to provide the student with a comprehensive and systematic training in Asian affairs for a liberal education and career preparation. Emphasis is placed on political science, economics, history, geography, Asian languages. Students will take 30 hours from (but not limited to) the list of courses below. Students must select courses from a minimum of three different departments; no more than 15 hours of course work from one department will count toward the Asian Studies concentration.

*Asian Studies Electives*

ASST 2100	Introduction to Asian Studies
ASST 3010	Issues in Asian Studies
ASST 4910	Directed Research
ASST 4920	Directed Readings
ASST 4980	

*Asian Language and Culture*

CHIN 2140	Intermediate Chinese I
CHIN 2150	Intermediate Chinese II
CHIN 3980	Special topics in Chinese
JAPN 2140	Intermediate Japanese I

JAPN 2150	Intermediate Japanese II
JAPN 2190	Study Abroad
JAPN 3010	Conversation And Composition I
JAPN 3020	Conversation And Composition II
JAPN 3170	Business Japanese
JAPN 3410	Survey Of Japanese Civilization I
JAPN 3980	Special Topics in Japanese Studies
JAPN 4010	Japanese Syntax And Stylistics I
JAPN 4020	Japanese Syntax And Stylistics II
JAPN 4050	Advanced Conversation I
JAPN 4060	Advanced Conversation II
JAPN 4070	
JAPN 4190	Study Abroad
JAPN 4940	Internship in Japanese
JAPN 4980	Special Topics In Japanese Studies
JAPN 4990	Independent Study In Japanese
FLAN 3440	Intercultural Communication: Principles And Practice

*Asian Studies in Arts and Humanities:*

ARTH 2100	
ARTH 3250	Topics In Asian Art
HIST 2700	Japan And World War II
HIST 2710	Postwar Japan
HIST 2720	
HIST 2730	The Chinese Revolution
HIST 4720	Modern Chinese History
HIST 4740	Modern Japanese History
HIST 4750	
PHIL 3500	Eastern Thought
REL 3500	Eastern Thought
REL 3510	Comparative Religion: Living Non-Western Religions

*Asian Studies in Social and Behavioral Sciences:*

ECON 3500	Comparative Economic Systems
GEPL 3120	Geography Of Asia
PSC 3150	Research and Writing in Political Science
PSC 4480	Introduction to Nonprofits
PSC 4900	Politics of Asia

Code	Title	Hours
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**Disability Studies Concentration**

The concentration in Disability Studies (DST) consists of a minimum of 33 credit hours.

*Required*

DST 2020	Introduction to Disability Studies	3
DST 3030	Disability Culture	3
or DST 3040	Disability, Technology, and Society	
or DST 3060	U.S. Disability History	
or DST 3090	Disability in American Literature	
DST 4940	Internship In Disability Studies	3

DST 4990	Capstone in Disability Studies	3
<i>Disability Studies Electives</i>		21
DST 2410		
DST 2980	Special Topics in Disability Studies	
DST 3040	Disability, Technology, and Society (If not taken above)	
DST 3060	U.S. Disability History (If not taken above)	
DST 3090	Disability in American Literature (If not taken above)	
DST 3100	Disability and Chronic Illness	
DST 3250	Disability and Life Narratives	
DST 3700	Disability and Communication	
DST 3980	Special Topics in Disability Studies	
DST 4000	Global Issues in Disability Studies	
DST 4100	Disability and Sexuality	
DST 4200	Crip Arts, Crip Culture	
DST 4300	Disability and Children's Literature - WAC	
DST 4400	Gender and Disability	
DST 4500	Asylums, Prisons and Total Institutions	
DST 4640	Disability Law and Human Rights	
DST 4800	Autism and Culture	
DST 4950	Independent Study	
DST 4980	Special Topics in Disability Studies	
WGST 3600	Feminist Health Humanities	

Code	Title	Hours
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**Concentration in General Studies**

The General Studies program has been established in recognition of the fact that existing majors may not satisfy the needs of all students desiring a liberal education. General Studies is an interdisciplinary program that allows students to select a core area of concentration and cognate coursework not offered in traditional majors. Students who plan to pursue graduate or professional degree programs or enter certain employment areas that require established curricular backgrounds may find it to their advantage to consider existing majors offered within the college rather than the General Studies option. The standard majors have wider acceptance and more readily identify the nature and quality of an individual's academic background. Students should not declare this major before they have completed 80 credit hours. Students seeking admission to this program will be interviewed by an advisor in the college Student Services Office and must have sound reasons for their choice. Once accepted into the program, students must have their courses approved by the General Studies advisor for use in the core area of concentration and the cognate requirement. Under this program, the University General Education and College of Arts and Letters Skills curriculum requirements specified in the Degree Requirements section of this catalog must be fulfilled, and an area of concentration in the natural sciences, social sciences or humanities must be identified for the purpose of determining education requirements. Students must take at least 60 hours of courses at the 2000 level or higher and at least 30 hours of courses at the 3000/4000 level and have earned a minimum of 120 hours to be eligible for graduation. In lieu of a major, students must take at least 15 but not more than 34 hours of course work in a single department to serve as the core area and 16-35 hours of course work to serve as the cognate for a total of 50 hours. Students must meet a minimum GPA average of 2.0 in a GPA calculation of the core area as well as a secondary GPA calculation of the core area and the cognate. Courses used for the core concentration must be courses that would count in the major in those departments.

Code	Title	Hours
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**Women and Gender Studies Concentration**

Concentration minimum is 33 hours (30 hours if double-major)

*Core Requirements*

WGST 3010	Global Issues In Women's Studies	3
WGST 3150	Proseminar in Women's & Gender Studies	3
WGST 4870	Feminisms	3
WGST 4890	Research and Methods in Women's and Gender Studies	3
WGST 4900	Seminar In Women's Studies	3
WGST 4940	Internship In Women's Studies	1-3

*Concentration Electives: Select 15 credits from the list below. Students for whom WGST is a second major are required to take only 12 hours of electives.*

WGST 2010	Introduction To Gender Studies: Gender, Sex And Difference	
WGST 2020	Girlhood and Adolescence	
WGST 2400	Women's Roles: A Global Perspective	



WGST 2880	Contemporary U.S. Queer Cultures
WGST 2980	Special Topics In Women's And Gender Studies
WGST 3030	Women and the Body
WGST 3080	Women In Poverty
WGST 3100	Globally Queer
WGST 3200	Issues In Lesbian, Transgender, Bisexual And Gay Communities
WGST 3400	
WGST 3510	Interpersonal Practice with Lesbian, Gay, Bisexual, Transgender and Queer Individuals
WGST 3550	Feminism And Philosophy: Love, Sex and Marriage
WGST 3600	Feminist Health Humanities
WGST 3980	Topics In Women's Studies
WGST 4160	Health And Gender
WGST 4190	Gender In Cross-Cultural Perspective
WGST 4880	Queer Theory WAC
WGST 4980	Special Issues In Social Work
<b>Interdisciplinary Electives</b>	
ARTH 2700	
ARTH 3700	
ARTH 3750	Art and Disease - WAC
ARTH 3820	
ECON 3050	Economics Of Gender
ENGL 3750	Women And Literature - Writing Across the Curriculum
ENGL 3850	LGBTQ Literature
HIST 3600	Women In American History
HIST 4210	Women In Early America
HIST 4290	US Women from 1865
HIST 4300	LGBTQ History in America
HIST 4490	Witchcraft And Magic In Medieval And Early Modern Europe
HEAL 4500	Women's Health Care
PSC 2210	Women And Politics
PSC 4590	Law, Policy And The Politics of Sexuality
PSC 3800	Sexual Politics
SOCW 3510	Interpersonal Practice with Lesbian, Gay, Bisexual, Transgender and Queer Individuals

**First Year**

<b>First Term</b>		<b>Hours</b>
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
HIST 1010-1200 Arts/Humanities (History)		3
Elementary Foreign Language I		4
<b>Hours</b>		<b>14</b>

**Second Term**

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
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Elementary Foreign Language II	4	
Natural Sciences Core	3	
Social Sciences Core	3	
Arts/Humanities Core (Fine Arts)	3	
<b>Hours</b>		<b>16</b>

**Second Year****First Term**

Intermediate Foreign Language I or approved culture course	3	
Natural Sciences Core	3	
Natural Sciences Core (Lab)	1	
Social Sciences Core	3	
ENGL 2710-2800 Arts/Humanities (English Lit)	3	
Diversity of US	3	
<b>Hours</b>		<b>16</b>

**Second Term**

Intermediate Foreign Language II or approved culture course	3	
Non#US Diversity	3	
Social Sciences Core	3	
Arts/Humanities Core (Elective Humanities)	3	
General Studies Core Area	3	
<b>Hours</b>		<b>15</b>

**Third Year****First Term**

General Studies Core Area	6	
Elective - Writing Across Curriculum	3	
General Studies Cognate	6	
<b>Hours</b>		<b>15</b>

**Second Term**

General Studies Core Area	6	
General Studies Cognate	9	
<b>Hours</b>		<b>15</b>

**Fourth Year****First Term**

General Studies Core Area	3	
General Studies Cognate	9	
Elective - Writing Across Curriculum	3	
<b>Hours</b>		<b>15</b>

**Second Term**

General Studies Cognate	8	
Elective	6	
<b>Hours</b>		<b>14</b>

<b>Total Hours</b>		<b>120</b>
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- PLO 1. write clearly and effectively for a variety of audiences and purposes\\n
- PLO 2. use quantitative reasoning to analyze problems and identify solutions\\n
- PLO 3. locate, interpret, determine the credibility of, and use information effectively, ethically, and legally\\n
- PLO 4. analyze and evaluate alternative points of view\\n

- PLO 5. demonstrate critical thinking skills in the processes they use to identify and solve problems

## Health Humanities Minor

Code	Title	Hours
For the minor, students should complete either of the following:		3
DST 3030	Disability Culture	
	or WGST 36C Feminist Health Humanities	
To complete the minor, select 15 credits from the list below with no more than 6 credits selected from a single department or discipline		15
ANTH 3330	Food, Health, Society	
ANTH 4760	Medical Anthropology	
ARTH 3750	Art and Disease - WAC	
COMM 3760	Health Communication	
DST 3100	Disability and Chronic Illness	
DST 3060	U.S. Disability History	
DST 3090	Disability in American Literature	
DST 3980	Special Topics in Disability Studies	
DST 4100	Disability and Sexuality	
DST 4200	Crip Arts, Crip Culture	
DST 4400	Gender and Disability	
DST 4980	Special Topics in Disability Studies <sup>1</sup>	
DST 4800	Autism and Culture	
FLAN 3440	Intercultural Communication: Principles And Practice	
HIST 3120	Women in Medieval Europe	
HIST 3470	U.S. Disability History	
PHIL 3370	Medical Ethics	
PHIL 3310	Science And Society	
PHIL 3900	Seminar	
PHIL 3160	Data Science Ethics	
PHIL 3180	Environmental Ethics	
PHIL 3630	Philosophy Of Psychology	
PHIL 4650	Philosophy Of Mind	
PSY 3740	Health Psychology	
REL 1220	World Religions	
SOC 4180	Medical Sociology	
SPAN 2150	Intermediate Spanish II <sup>2</sup>	
WGST 2980	Special Topics In Women's And Gender Studies <sup>1</sup>	
WGST 4110	Disability and Sexuality	
WGST 4160	Health And Gender	
<b>Total Hours</b>		<b>18</b>

<sup>1</sup> Special topics should pertain to issues in Health Humanities and must be approved by advisor for use in the minor.

<sup>2</sup> Only sections of SPAN 2150 identified as for Health Professions are eligible for use in minor.

<sup>3</sup> Learners may take a total of 2 classes from social science disciplines (i.e. Anthropology, Sociology, Psychology)

- Cultivate skills for cross-disciplinary analysis of the ways that power and privilege relate to health inequalities (racism, classism, sexism, homophobia, and ableism) that have led to disparities in health outcomes and delivery in contemporary and historical contexts.
- Identify and engage with multiple discourses about health and medicine (institutional, historical, political, juridical, artistic, social, cultural, etc.).
- Integrate health literacy with humanistic methods to interpret, contextualize and critique health-related discourses and to consider new ways of interpreting embodiment.
- Apply close reading and listening strategies, contemporary theory, critical analysis, and ethical evaluation to field work experience in health-related professional settings.

## Interdisciplinary Minors

Because of the interdisciplinary nature of these minors, and because they are not associated with a major degree program, students must work with their advisor in selecting which courses to take. Courses required/ counted in the major may not also be taken for minor credit. Whenever possible, courses should be chosen from outside a student's major.

## Degrees Offered

- Minor in Digital Arts and Visual Communication (p. 207)
- Minor in Documentary Production and Practice (p. 208)
- Minor in Sound Production and Design (p. 208)
- Minor in Visual Effects and Animation (p. 208)

## Minor in Digital Arts and Visual Communication

**Description:** A broad range of communication design and creative problem-solving skills will prepare students to apply, and demonstrate an understanding of the visual communication design process using both traditional design skills and the latest computer software.

Code	Title	Hours
<b>Required Courses</b>		
ART 1070	Foundations of Digital Media (Art majors should replace this course with an additional elective from below)	3
Select remaining courses to total 18 credits from:		15
ART 1050	Foundations of 2D Design (2D Design)	
ART 1080	Foundations of Drawing I	
ART 2010	Graphic Design: Print <sup>1</sup>	
ART 2020	Graphic Design: Web <sup>1</sup>	
ART 2030	Introduction to Photography (Introduction/digital) <sup>1</sup>	
COMM 2150	Digital Design for Media Communication	
COMM 2300	Photojournalism	
FILM 2320	Digital Cinema Production I - WAC <sup>1</sup>	
ARTH 2980	Special Topics	
ART 3000	Photography: Topics <sup>1</sup>	
ART 3000	Photography: Topics (Intermediate) <sup>1</sup>	

ART 3010	<sup>1</sup>	
COMM 3340	Visual Communication	
COMM 3350		
FILM 3560	Methods for the Professional Editor <sup>1</sup>	
ART 4020	Time, Motion, Space: Topics <sup>1</sup>	
COMM 4330	Integrated Media <sup>1</sup>	
COMM 4340	Advanced Visual Communication <sup>1</sup>	
<b>Total Hours</b>		<b>18</b>

<sup>1</sup> This course has at least one pre-requisite. Contact the instructor to determine if you have acceptable alternative experience for admission into the course.

## Minor in Documentary Production and Practice

The interdisciplinary minor in Documentary Production and Practice aims to teach students about the history and application of documentary practice so that they may have an understanding of the specific tools and techniques used in the creation of still and moving images that convey factual, scientific and personal histories.

*The College recommends that non-Art majors also take ART 1070 before beginning this minor.*

Code	Title	Hours
<b>Required Courses</b>		
FILM 2310	Film I <sup>1</sup>	3
	or COMM 2160 Single Camera Production	
ART 2030	Introduction to Photography <sup>1</sup>	3
	or COMM 2300 Photojournalism	
Select remaining courses to total 18 credits from: <sup>2</sup>		12
ART 2030	Introduction to Photography <sup>1</sup>	
FILM 2310	Film I <sup>1</sup>	
COMM 2160	Single Camera Production	
COMM 2300	Photojournalism	
COMM 3180	Media Communication Law <sup>1</sup>	
FILM 3370	Documentary Film <sup>1</sup>	
FILM 3510	Cinematography and Color Grading <sup>1</sup>	
FILM 3820	Documentary Field Production <sup>1</sup>	
ART 4000	Advanced Photography: Topics <sup>1,3</sup>	
FILM 4210	<sup>1</sup>	
COMM 4220	Advanced Television Production <sup>1</sup>	
COMM 4250	Media Communication History <sup>1</sup>	
<b>Total Hours</b>		<b>18</b>

<sup>1</sup> This course has at least one pre-requisite. Contact the instructor to determine if you have acceptable alternative experience for admission into the course.

<sup>2</sup> Courses should be chosen primarily from outside your major. At least 9 credits must be at the 3/4000 level.

<sup>3</sup> *Documentary Photography* or other appropriate topics chosen in consultation with Advisor.

## Minor in Sound Production and Design

A minor in Sound Production and Design is a specialized secondary field of study for students who wish to concentrate on audio production in a variety of professional settings. This minor prepares students for careers as recording and sound engineering professionals in live performance, live television & radio broadcast, and audio post-production for film and video.

Code	Title	Hours
<b>Required Courses</b>		
COMM 2210	Audio Production I	3
THR 4400	Seminar Topics In Design	3
MUS 2260	Electronic Music	2
MUS 2270	Recording Techniques	2
Select remaining courses to total 18 credits from:		8
THR 1030	Stagecraft and Theatre Technology	
ART 1070	Foundations of Digital Media	
COMM 3210	Audio Production 2	
MUS 3260	Advanced Electronic Music	
MUS 3270	Advanced Recording Techniques	
<b>Total Hours</b>		<b>18</b>

## Minor in Visual Effects and Animation

A minor in Visual Effects and Animation is a specialized secondary field of study for students who wish to develop techniques for motion graphics and animation concept development and production.

Code	Title	Hours
<b>Required Courses</b>		
ART 1070	Foundations of Digital Media (Art majors should replace this course with an additional elective from below)	3
FILM 4240		3
Select remaining courses to total 18 credits from:		12
ART 2020	Graphic Design: Web <sup>1</sup>	
FILM 2310	Film I <sup>1</sup>	
FILM 2320	Digital Cinema Production I - WAC <sup>1</sup>	
ART 3010	<sup>1</sup>	
COMM 3350		
FILM 3530	Animation and Optical Printing <sup>1</sup>	
ART 4020	Time, Motion, Space: Topics <sup>1</sup>	
<b>Total Hours</b>		<b>18</b>



<sup>1</sup> This course has at least one pre-requisite. Contact the instructor to determine if you have acceptable alternative experience for admission into the course.

## Latin American and LatinX Studies

Charles Beatty-Medina, Advisor

This minor focuses upon the culture, language, politics, literature, and history of Latin American and US Latinx communities through a wide range of courses in the humanities and social sciences. It provides students with foundational knowledge about the Latin diaspora that supports careers in multiple fields, including but not limited to public service and non-profit work, business, law, and health care.

- Minor in Latin American and LatinX Studies (p. 209)

## Minor in Latin American and LatinX Studies

Students electing to pursue a minor in Latin American and LatinX studies must complete:

Code	Title	Hours
LALX 2000	Introduction to Latin American and Latinx Studies	3
Students must complete 15 additional hours to be chosen from courses approved by program committee and advisor		15
<b>Total Hours</b>		<b>18</b>

- PLO 1. Students will demonstrate interdisciplinary knowledge that embraces diverse aspects of the Latin American and Latinx experience including artistic, cultural, political, economic, social, and historical factors.
- PLO 2. Students will develop an understanding of concepts, theories, and methodologies utilized by diverse disciplines that contribute to the fields of Latin American and Latinx Studies.
- PLO 3. Students will develop substantive knowledge of Latin American and Latinx peoples and cultures that lead them to develop cross-cultural and international understanding to better act as informed and engaged global citizens.

## Law and Social Thought Interdisciplinary Major

Renee Heberle, Co-Director, Advisor  
 Jerry Van Hoy, Co-Director, Advisor  
 Sam Nelson, Pre-Law Advisor

Degrees Offered: Law and Social Thought (LST) offers a program for a bachelor of arts.

LST's curriculum is strictly interdisciplinary. It provides students with tools for the appraisal of U.S. and other legal systems and the policies, practices and philosophies that underlie them. It encourages reflection on the values that shape citizenship in contemporary democracy. It also focuses on issues of law in relation to morality, politics, language

and the arts of critical and creative thinking. LST students are given the responsibility of determining their path through LST, with hands-on advising from the co-directors, and are consulted on questions of program direction and course selection. Upper Division Seminars are selected by students in collaboration with faculty.

## Degrees Offered

- B.A. in Law and Social Thought (p. 211)
- Minor in Law and Social Thought (p. 214)

### LST 2010 Law And Social Thought

[3 credit hours]

This course examines the function and force of law in society in an interdisciplinary context. Students are given the opportunity to think about law in relationship to society, morality, politics, language, history and power. Readings may include perspectives from philosophy, literature, psychology, sociology, history, anthropology and opinions of the court.

**Term Offered:** Spring, Fall

### LST 2030 Cultural Geography

[3 credit hours]

A learning-through-writing course. Systematic applications of the concept of cultural to geographic themes: culture areas, cultural landscapes, culture history, cultural ecology and cultural diversity.

**Term Offered:** Spring

Multicultural Non-US Diversity

### LST 2500 Proseminar I

[1 credit hour]

For sophomore and junior majors in LST: discussion among faculty and students of the interdisciplinary study of law and LST program development. Topics vary, may be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Fall

### LST 2640 Race, Class, And Gender

[3 credit hours]

Introduction to the study of race, class and gender as factors in American satisfaction.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity, OT36 Social Science

### LST 2700 Principles of Political Theory - WAC

[3 credit hours]

This course investigates core concepts in the history of political theory such as justice, liberty, and equality. We discuss how and why the influence of certain authors and ideas persists. Contemporary issues are interpreted using these authors and ideas in order to strengthen critical thinking skills and broaden students' thinking about politics.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Fall

### LST 2980 Special Topics

[3 credit hours]

Special topics in Law and Social Thought. Topics vary by instructor, may be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall



**LST 3050 Economics Of Gender**

[3 credit hours]

Analysis of labor market outcomes and income distribution characteristics resulting from gender differences; gender-related economic outcomes: the "feminization of poverty," persistent male-female wage differential, expanding proportions of female-headed and same sex households.

**Term Offered:** Spring, Summer, Fall  
Multicultural US Diversity

**LST 3060 U.S. Disability History**

[3 credit hours]

This course provides a historical overview of the lived experiences of people defined as disabled and changing historical definitions of disability in the region that became the United States of America. We will consider how major historical forces such as capitalism, industrialization, colonialism, and democratic ideals have impacted and been shaped by people with disabilities.

**Prerequisites:** LST 2010 with a minimum grade of D-

**LST 3080 Economics Of Crime**

[3 credit hours]

Study of crime as an economic activity; costs of crime to the community; economic approach to crime reduction.

**Term Offered:** Spring, Fall

**LST 3180 Media Communication Law**

[3 credit hours]

Case studies and readings in libel, privacy, access and other legal issues arising from constitutional, judicial and administrative laws that affect mass communication.

**Term Offered:** Spring, Fall

**LST 3500 Proseminar II**

[1 credit hour]

For Junior and Senior majors in LST: discussion among faculty and students of the interdisciplinary study of law and LST program development. Topics vary, may be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Fall

**LST 3510 Constitutional Law I**

[3 credit hours]

Examines the political and institutional role of the U.S. Supreme Court in the development of the American legal system, the separation of powers between the executive, legislative, and judicial branches of the federal government, and the relationship between the federal government and the states. The course focuses on the analysis of Supreme Court cases as well as political science and legal scholarship.

**Term Offered:** Spring, Fall

**LST 3520 Constitutional Law II**

[3 credit hours]

The development of the American legal system and the implications of judicial decisions affecting the institutions and powers of government, the federal system and the relationship of the individual to government.

**Prerequisites:** PSC 1200 with a minimum grade of D-

**Term Offered:** Spring, Fall

**LST 3550 Principles Of Law**

[3 credit hours]

An overview of the politics of law. We examine such questions as the sources and existence of law, the legal process in civil and criminal cases, the nature of rights and the search for justice through participation in the legal system. Addresses specific issues such as plea bargaining and jury trials, personal injury lawsuits, national security and police powers, and the nomination and confirmation of federal judges.

**Term Offered:** Spring, Summer, Fall

**LST 3710 Psychology And The Law**

[3 credit hours]

Emphasizes the utilization of theoretical and empirical notions of psychological science as they apply to both civil and criminal law.

**LST 3750 Social And Political Philosophy**

[3 credit hours]

A study of classic and contemporary treatments of justice, authority, the relations between individual and community, the meaning of freedom and equality, power and violence, and race and gender.

**Term Offered:** Fall

**LST 3760 Crime And Punishment**

[3 credit hours]

A philosophical study of topics such as crime, responsibility, justice and punishment. Special attention is paid to current practices in the criminal justice system.

**Term Offered:** Spring, Fall

**LST 3770 Art and Disease - WAC**

[3 credit hours]

This WAC course considers how objects of material culture (film, photography, painting, sculpture, etc.) have intersected with disease while studying disease-related texts and histories of contagion (e.g., AIDS). Web-assisted course.

**Prerequisites:** LST 2010 with a minimum grade of D-

**LST 3800 Sexual Politics**

[3 credit hours]

This course examines sexual politics through studying canonical literature of Western political theory, feminism and postmodern theory.

**Term Offered:** Spring, Fall

**LST 3810 Political Geography**

[3 credit hours]

An examination of geopolitical and geostrategic issues at the nation-state and international level.

**Term Offered:** Spring, Fall

**LST 3820 Contemporary Political Ideas**

[3 credit hours]

Surveys trends in 20th century political and social thought, including critical theory, post-structuralist theory, feminism and anti-racist politics. Particular issues addressed include bureaucracy, mass society, state and civil violence, and identity politics.

**Term Offered:** Spring

**LST 3980 Special Topics**

[3 credit hours]

Special topics relating to issues in Law and Social Thought. Topics vary by instructor, may be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**LST 4000 Global Issues in Disability Studies**

[3 credit hours]

Special focus will be on global and contemporary issues as they arise in changing political and social environments. Geopolitical area of focus may vary based instructor expertise.

**Term Offered:** Fall

**LST 4010 Islamic Law and Society**

[3 credit hours]

This course will survey Islamic law in historical and comparative modern contexts. This course will provide (a) basic introduction to the sources and methods of classical Islamic legal interpretation, (b) survey of the most pressing areas in which traditional Islamic norms remain relevant today—criminal law, family law, and commercial law, (c) the challenges and transformations introduced by colonialism, modernity, and the nation-state, and (d) comparison with the American law and the constitution, highlighting comparative interpretive methods such as originalism versus progressivism, and innovative dimensions of Islamic law such as legal pluralism, wide room for local custom, religious diversity, and restorative justice.

**Term Offered:** Spring

**LST 4550 Issues In Contemporary Law**

[3 credit hours]

Examination of contemporary approaches to the analyses of law and the judicial system with special focus on current issues facing the courts.

**Term Offered:** Spring, Fall

**LST 4590 Law, Policy And The Politics of Sexuality**

[3 credit hours]

This course explores the public policies that affect the lesbian, gay, bisexual and transgender communities in the United States and in other countries. It examines the factors that affect policymaking in this area.

**Term Offered:** Spring, Fall

**LST 4640 Disability Law and Human Rights**

[3 credit hours]

Explores the intersections between disability rights and human rights by examining the development, the ideological framework, and the legal contexts of disability law in the U.S. and global contexts. Recommended: DST 2020, 3020, 3030, or 3060.

**Term Offered:** Spring, Fall

**LST 4710 Criminology**

[3 credit hours]

Crime and criminal behavior: nature, types and extent of crime, societal reactions; problems in research and theory, prevention, control and treatment.

**Term Offered:** Summer

**LST 4840 Ecotourism: Studies of the Africana World**

[3 credit hours]

Introduce students to the field of ecotourism studies and specific challenges of community development and sustainability. The course covers ecotoursim in the Africana world of Africa, the Caribbean, and Latin America.

**Prerequisites:** LST 2010 with a minimum grade of D-

**LST 4900 Seminar In Law And Social Thought**

[3 credit hours]

Advanced seminar for the interdisciplinary study of law in society. Topics vary by instructor, may be repeated for credit. Required of LST majors.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**LST 4940 Field Experience**

[1-6 credit hours]

Community work, internship, or field study relating to law and society. May be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**LST 4980 Special Topics**

[3 credit hours]

Advanced seminar in Law and Social Thought. Topics vary by instructor, may be repeated for credit. Required of LST majors.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**LST 4990 Capstone in Law and Social Thought**

[3 credit hours]

The Capstone course in Law and Social Thought is an interdisciplinary, collaboratively taught seminar thematically organized around a topic in the study of law.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Majors in Law and Social Thought are strongly encouraged to pursue program honors. In order to earn program honors, the student must:

1. Have a minimum LST GPA of 3.4 and a minimum cumulative GPA of 3.3.
2. Submit two papers from different, advanced LST courses to the Program Directors. These courses will also satisfy the LST elective or upper division seminar requirements.
3. Write a thesis under the direction of an LST-affiliated faculty member. Students must enroll in Honors Thesis in Law and Social Thought. Participation in the University Honors College is not required for those seeking program honors.
4. Honors Thesis in Law and Social Thought (3 hours) will count as an elective course in the required courses for the major.

## B.A. in Law and Social Thought

- Law and Social Thought (p. 211)
- Disability Studies Concentration (p. 212)
- Women's and Gender Studies Concentration (p. 212)

### Law and Social Thought

Code	Title	Hours
<b>Requirements</b>		
LST 2010	Law And Social Thought	3
LST 2500	Proseminar I	1
LST 3500	Proseminar II	1
LST 4900	Seminar In Law And Social Thought (take twice)	6
LST 4990	Capstone in Law and Social Thought	3



LST 4940	Field Experience	3-6
<b>LST Elective Courses/Cross-Listed Courses</b>		
Select 15 hours in consultation with an LST co-director/advisor. The following Paths are recommended but not required:	15	
Path 1: Law, History, and Theory		
Path 2: Law, Difference, and Social Practices		
Path 3: Law, Institutions, and Public Policy		
Path 4: Comparative Law		
Every LST student is required to turn in a graduation portfolio.		
<b>Total Hours</b>		<b>32-35</b>

<sup>1</sup> Students are required to take both Proseminar I & Proseminar II.

## Disability Studies Concentration

Code	Title	Hours
<b>Requirements</b>		
LST 2010	Law And Social Thought	3
LST 2500	Proseminar I	1
LST 3500	Proseminar II	1
LST 4900	Seminar In Law And Social Thought (take twice)	6
LST 4990	Capstone in Law and Social Thought	3
LST 4940	Field Experience	3-6
<b>Disability Studies Concentration</b>		
Select 15 hours of Disability Studies courses in consultation with an LST co-director/advisor.	15	
Every LST student is required to turn in a graduation portfolio.		
<b>Total Hours</b>		<b>32-35</b>

<sup>1</sup> Students are required to take both Proseminar I & Proseminar II.

## Women's and Gender Studies Concentration

Code	Title	Hours
<b>Requirements</b>		
LST 2010	Law And Social Thought	3
LST 2500	Proseminar I	1
LST 3500	Proseminar II	1
LST 4900	Seminar In Law And Social Thought (take twice)	6
LST 4990	Capstone in Law and Social Thought	3
LST 4940	Field Experience	3-6
<b>Concentration in Women and Gender Studies</b>		
Select 15 hours of Women and Gender Studies Courses in consultation with an LST co-director/advisor.	15	
Every LST student is required to turn in a graduation portfolio.		
<b>Total Hours</b>		<b>32-35</b>

<sup>1</sup> Students are required to take both Proseminar I & Proseminar II.

- Law and Social Thought
- Disability Studies Concentration
- Women's and Gender Studies Concentration (p. 214)

## Law and Social Thought

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

First Term	Hours	
AR 1000	First Year Orientation	1
LST 2010	Law And Social Thought	3
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
Elementary Foreign Language I		4
HIST 1010-1200	Arts/Humanities Core (History)	3
<b>Hours</b>		<b>17</b>
Second Term	Hours	
LST 2500	Proseminar I	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
LST 2800	Social Sciences Core/Non-US Diversity	3
Elementary Foreign Language II		4
BIOL 1120	Survey Of Biology (Natural Sciences Core)	3
BIOL 1220	Survey Of Biology Laboratory (Natural Sciences Core - Lab)	1
<b>Hours</b>		<b>15</b>
Third Term	Hours	
Intermediate Foreign Language I or approved culture course		3
PSY 1010	Principles Of Psychology	3
ENGL 2710-2800	Arts/Humanities Core (English Lit)	3
PHYS 1320	Jurassic Physics (Natural Sciences Core)	3
GEPL 2030	Cultural Geography	3
<b>Hours</b>		<b>15</b>
Fourth Term	Hours	
Intermediate Foreign Language II or approved culture course		3
PHIL 1010	Introduction To Logic (Arts/Humanities Core)	3
LST 2640	Race, Class, And Gender (Social Sciences Core/Diversity of US)	3
ANTH 2100	Human Society Through Film (Social Sciences Core)	3
PHIL 3230	Modern Philosophy	3
<b>Hours</b>		<b>15</b>
Fifth Term	Hours	
REL 1220	World Religions (Arts/Humanities Core)	3
ECON 1010	Introduction To Economic Issues (Social Sciences Core)	3
MUS 2220	History Of Jazz (Arts/Humanities Core - Fine Arts)	3
LST 3550	Principles Of Law	3

BUAD 2080	Global Environment Of Business	3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
LST 3750	Social And Political Philosophy	3
LST 4900	Seminar In Law And Social Thought	3
LST 4940	Field Experience	3
COMM 4090	Media Communication Ethics	3
ENGL 3050	Persuasive Writing	3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
LST 3510	Constitutional Law I	3
LST 4900	Seminar In Law And Social Thought	3
SOCW 3070	Child Welfare I	3
COMM 3180	Media Communication Law	3
<b>Hours</b>		<b>12</b>
<b>Eighth Term</b>		
LST 3500 or LST 2500	Proseminar II or Proseminar I	1
LST 3520	Constitutional Law II	3
LST 4990	Capstone in Law and Social Thought	3
ECON 3070		3
BANS 3060	Managerial Economics	3
WGST 3010	Global Issues In Women's Studies	3
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>120</b>

### Disability Studies Concentration

Below is a sample plan of study. Consult your degree audit for your program requirements.

<b>First Term</b>		<b>Hours</b>
AR 1000	First Year Orientation	1
LST 2010	Law And Social Thought	3
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
	Elementary Foreign Language I	4
HIST 1010-1200	Arts/Humanities Core (History)	3
<b>Hours</b>		<b>17</b>
<b>Second Term</b>		
LST 2500	Proseminar I	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
LST 2800	Social Sciences Core/Non-US Diversity	3
	Elementary Foreign Language II	4
BIOL 1120	Survey Of Biology (Natural Sciences Core)	3
BIOL 1220	Survey Of Biology Laboratory (Natural Sciences Core - Lab)	1
<b>Hours</b>		<b>15</b>
<b>Third Term</b>		
	Intermediate Foreign Language I or approved culture course	3

PSY 1010	Principles Of Psychology	3
ENGL 2710-2800	Arts/Humanities Core (English Lit)	3
PHYS 1320	Jurassic Physics (Natural Sciences Core)	3
GEPL 2030	Cultural Geography	3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
	Intermediate Foreign Language II or approved culture course	3
PHIL 1010	Introduction To Logic (Arts/Humanities Core)	3
DST 2020	Introduction to Disability Studies	3
ANTH 2100	Human Society Through Film (Social Sciences Core)	3
PHIL 3230	Modern Philosophy	3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
REL 1220	World Religions (Arts/Humanities Core)	3
ECON 1010	Introduction To Economic Issues (Social Sciences Core)	3
MUS 2220	History Of Jazz (Arts/Humanities Core - Fine Arts)	3
BUAD 2080	Global Environment Of Business	3
DST 3030	Disability Culture	3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
LST 4900	Seminar In Law And Social Thought	3
DST 3060	U.S. Disability History	3
LST 4940	Field Experience	3
COMM 4090	Media Communication Ethics	3
ENGL 3050	Persuasive Writing	3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
LST 4900	Seminar In Law And Social Thought	3
DST 4640	Disability Law and Human Rights	3
SOCW 3070	Child Welfare I	3
COMM 3180	Media Communication Law	3
<b>Hours</b>		<b>12</b>
<b>Eighth Term</b>		
LST 3500 or LST 2500	Proseminar II or Proseminar I	1
LST 4990	Capstone in Law and Social Thought	3
DST 4500	Asylums, Prisons and Total Institutions	3
ECON 3070		3
BANS 3060	Managerial Economics	3
WGST 3010	Global Issues In Women's Studies	3
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>120</b>



## Women's and Gender Studies Concentration

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
AR 1000	First Year Orientation	1
LST 2010	Law And Social Thought	3
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
Elementary Foreign Language I		4
HIST 1010-1200	Arts/Humanities Core (History)	3
<b>Hours</b>		<b>17</b>
Second Term		Hours
LST 2500	Proseminar I	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
LST 2800	Social Sciences Core/Non-US Diversity	3
Elementary Foreign Language II		4
BIOL 1120	Survey Of Biology (Natural Sciences Core)	3
BIOL 1220	Survey Of Biology Laboratory (Natural Sciences Core - Lab)	1
<b>Hours</b>		<b>15</b>
Third Term		Hours
Intermediate Foreign Language I or approved culture course		3
PSY 1010	Principles Of Psychology	3
ENGL 2710-2800	Arts/Humanities Core (English Lit)	3
PHYS 1320	Jurassic Physics (Natural Sciences Core)	3
GEPL 2030	Cultural Geography	3
<b>Hours</b>		<b>15</b>
Fourth Term		Hours
Intermediate Foreign Language II or approved culture course		3
PHIL 1010	Introduction To Logic (Arts/Humanities Core)	3
ANTH 2100	Human Society Through Film (Social Sciences Core)	3
WGST 2010	Introduction To Gender Studies: Gender, Sex And Difference	3
PHIL 3230	Modern Philosophy	3
<b>Hours</b>		<b>15</b>
Fifth Term		Hours
REL 1220	World Religions (Arts/Humanities Core)	3
ECON 1010	Introduction To Economic Issues (Social Sciences Core)	3
MUS 2220	History Of Jazz (Arts/Humanities Core - Fine Arts)	3
BUAD 2080	Global Environment Of Business	3
WGST 2610		3
<b>Hours</b>		<b>15</b>
Sixth Term		Hours
LST 4900	Seminar In Law And Social Thought	3

WGST 3550	Feminism And Philosophy: Love, Sex and Marriage	3
LST 4940	Field Experience	3
COMM 4090	Media Communication Ethics	3
ENGL 3050	Persuasive Writing	3
<b>Hours</b>		<b>15</b>
Seventh Term		Hours
WGST 4590	Law, Policy And The Politics of Sexuality	3
LST 4900	Seminar In Law And Social Thought	3
SOCW 3070	Child Welfare I	3
COMM 3180	Media Communication Law	3
<b>Hours</b>		<b>12</b>
Eighth Term		Hours
LST 3500 or LST 2500	Proseminar II or Proseminar I	1
LST 4990	Capstone in Law and Social Thought	3
WGST 4610		3
ECON 3070		3
BANS 3060	Managerial Economics	3
WGST 3010	Global Issues In Women's Studies	3
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>120</b>

- PLO 1. Students will demonstrate an ability to interpret current law related issues in the context of broad cultural, historical, and intellectual traditions.
- PLO 2. Students will be able to critically assess the assumptions and traditions that guide distinct interpretations of the law and of legal institutions and understandings of justice and fairness.
- PLO 3. Students will demonstrate awareness of and ability to evaluate social effects of legal decisions, legal institutions and the deployment of force by legal authorities.
- PLO 4. Students will demonstrate knowledge of and evaluate the status of cultural and economic differences vis-à-vis the law.
- PLO 5. Students will demonstrate awareness of the legal status and meaning of class, race, gender, and disability.
- PLO 6. Students will write clearly, critically, and effectively.
- PLO 7. Students will read and analyze complex arguments.
- PLO 8. Students will make well-reasoned judgments about relations among courses in different disciplines and demonstrate sensitivity to difference between interdisciplinary and discipline specific approaches.
- PLO 9. Students will demonstrate awareness of professional options and an awareness of the contribution of the study of law and society to legal practices.

## Minor in Law and Social Thought

Courses taken in the minor must come from a discipline other than the student's major discipline to ensure that the minor will provide intellectual breadth complementary to a specialized curriculum in a traditional discipline.

## Independent Study

No more than one independent study will count toward completion of the minor.

## Program of Study

The student's program of study must be approved by a program Advisor and verified before graduation.

## Field Experience

Students working toward a minor in Law and Social Thought will be invited to participate in field experience, and elective credit will be offered depending on the student's level of involvement.

Code	Title	Hours
<b>Core Requirements</b>		
LST 2010	Law And Social Thought	3
<b>Electives</b>		
Select five electives cross-listed or taught for the Law and Social Thought program: <sup>1</sup>		15
Path 1: Law, History, and Theory		
Path 2: Law, Difference, and Social Practices		
Path 3: Law, Institutions, and Public Policy		
Path 4: Comparative Law		
<b>Total Hours</b>		<b>18</b>

<sup>1</sup> At least one elective must be a law and social thought upper division seminar (LST 4900) compatible with the chosen path.

- PLO 1. Students will interpret current law related issues in the context of broad cultural, historical, and intellectual traditions.
- PLO 2. Students will critically assess the assumptions and traditions that guide distinct interpretations of the law and of legal institutions and understandings of justice and fairness.
- PLO 3. Students will demonstrate awareness of and ability to evaluate social effects of legal decisions, legal institutions, and the deployment of force by legal authorities.
- PLO 4. Students will demonstrate knowledge of and evaluate the status of cultural and economic differences vis-a-vis the law.
- PLO 5. Students will demonstrate awareness of the legal status and meaning of class, race, sexuality, gender and disability.

## Middle East Studies

Gaby Semaan, Advisor

Middle East Studies offers a bachelor of arts degree or a minor. Its offerings are designed to provide students an appropriate exposure to the history, religions, cultures and socioeconomic systems of the Middle East, and in turn, that region's relations with the rest of the world, as well as to create balanced perceptions of the various factors and phenomena in the Middle East in historical and contemporary contexts.

### Degrees Offered

Middle East Studies (p. 215)

Middle East Studies Minor (p. 217)

### MES 2400 Introduction to the Contemporary Cultures of the Middle East through Movies and Arts

[3 credit hours]

The objective of this course is to introduce students to the contemporary cultures of the Middle East and North Africa in both theoretical terms and details of daily life. The course will provide a general overview of the geography and demography of the Middle East, and will engage in a discussion of the different aspects of the life of the people in the different countries using movies. The course will focus on the different constituents of the Middle Eastern cultures as they are reflected in movies, music, artwork, paintings, video clips, literary works and other creative expressions.

**Term Offered:** Spring, Fall

### MES 3200 The Contemporary Middle East a Historical and Modern In-Depth Overview

[3 credit hours]

The objective of this course is to introduce students to the contemporary Middle East, and provide an in-depth overview of its historical context and modern era. The course introduces you to the geography and demography of the Middle East and will engage in a discussion of the different aspects of the life of the people in the different countries. The course will focus on the languages, religious identity and the impact of colonialism/imperialism.

**Term Offered:** Spring, Fall

### MES 3800 The Governments and Legal Systems of the Contemporary Middle East

[3 credit hours]

The objective of this course is to introduce students to the contemporary governments and legal systems of the Middle East and North Africa. The course will provide a comprehensive view of the domestic and foreign policies of the region by taking a comparative and thematic approach addressing the political, legal, economic and social structures. The course will also address the aftermath of the so called Arab Spring, the ongoing violence and war in different countries in the region.

**Term Offered:** Spring, Fall

### MES 4200 Current Issues in the Middle East

[3 credit hours]

The objective of this course is to introduce students to the current issues in the Middle East and North Africa. The course will provide an overview of the different issues facing the Middle East and its people. In addition, the class will provide daily follow up on current issues in the region especially those related to the interests to the students in the class.

**Term Offered:** Spring, Fall

## B.A. in Middle East Studies

Gaby Semaan, Advisor

Middle East Studies offers a bachelor of arts degree or a minor. Its offerings are designed to provide students an appropriate exposure to the history, religions, cultures, and socioeconomic systems of the Middle East, and in turn, that region's relations with the rest of the world, as well as to create balanced perceptions of the various factors and phenomena in the Middle East in historical and contemporary contexts.

The Middle East Studies program requires a total of 31 semester hours in the major including 16 hours of required courses and 15 of electives chosen in consultation with MES adviser.

Code	Title	Hours
<b>Required courses 16 hours:</b>		
MES 2400	Introduction to the Contemporary Cultures of the Middle East through Movies and Arts	3
MES 3200	The Contemporary Middle East a Historical and Modern In-Depth Overview	3
MES 3800	The Governments and Legal Systems of the Contemporary Middle East	3
MES 4200	Current Issues in the Middle East	3
FLAN 3440	Intercultural Communication: Principles And Practice	4
<b>Electives:</b>		<b>15</b>
Chosen with Advisor Approval from the following:		
ARBC 1110	Elementary Arabic I	
ARBC 1120	Elementary Arabic II	
ARBC 2140	Intermediate Arabic I	
ARBC 2150	Intermediate Arabic II	
ARBC 3010	Conversation and Composition I	
FREN 1080	Culture And Commerce In The French-Speaking World	
FREN 1090	French & Francophone Culture In The Modern World	
FREN 1110	Elementary French I	
FREN 1120	Elementary French II	
FREN 1500		
FREN 2140	Intermediate French I	
FREN 2150	Intermediate French II	
GEPL 4810	Political Geography	
GERM 1080	German Culture And Commerce	
GERM 1090	Introduction To Modern German Culture	
GERM 1110	Elementary German I	
GERM 1120	Elementary German II	
GERM 2140	Intermediate German I	
GERM 2150	Intermediate German II	
SPAN 1010		
SPAN 1080	Culture & Commerce In The Spanish-Speaking World	
SPAN 1090	Culture Of Latin America	
SPAN 1100	Culture Of Spain	
SPAN 1110	Elementary Spanish I	
SPAN 1120	Elementary Spanish II	
SPAN 2140	Intermediate Spanish I	
SPAN 2150	Intermediate Spanish II	
HIST 3550	History Of The Middle East Since 1500	
PHIL 3500	Eastern Thought	
PHIL 3570	Philosophy Of Religion	
REL 2310	Old Testament/Tanakh	

REL 2500	Islam	
REL 3350	The Qur'an And Hadith	
REL 3980	Special Topics In Religious Studies	
<b>Total Hours</b>		<b>31</b>

<sup>1</sup> Students should take HIST 1120 toward the college's distributive Humanities requirement.

<b>First Term</b>		<b>Hours</b>
ENGL 1110	College Composition I	3
AR 1000	First Year Orientation	1
MATH 1180	Reasoning With Mathematics	3
Elementary Language I		4
HIST 1120	Middle East Civilization	3
UT Core Social Science		3
<b>Hours</b>		<b>17</b>

<b>Second Term</b>		<b>Hours</b>
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Language II		4
ARBC 1090	Culture of the Arabic-Speaking World	3
Natural Sciences Core		3
Social Sciences Core		3
<b>Hours</b>		<b>16</b>

<b>Third Term</b>		<b>Hours</b>
Intermediate Language I		3
ENGL 2710-ENGL 2800 UT Core Humanities - Literature		3
MES 2400	Introduction to the Contemporary Cultures of the Middle East through Movies and Arts	3
UT Core Natural Science		3
UT Core Natural Science Lab		1
ARBC 1080	Culture and Commerce in the Arabic-Speaking World	3
<b>Hours</b>		<b>16</b>

<b>Fourth Term</b>		<b>Hours</b>
Intermediate Language II		3
GEPL 4810	Political Geography	3
MES 3200	The Contemporary Middle East a Historical and Modern In-Depth Overview	3
Related or minor courses		6
<b>Hours</b>		<b>15</b>

<b>Fifth Term</b>		<b>Hours</b>
FLAN 3440	Intercultural Communication: Principles And Practice	4
WGST 2010	Introduction To Gender Studies: Gender, Sex And Difference	3
MES 3800	The Governments and Legal Systems of the Contemporary Middle East	3
Related or minor courses		3



Major elective	3
<b>Hours</b>	<b>16</b>
<b>Sixth Term</b>	
MES 4200 Current Issues in the Middle East (US Multicultural Diversity)	3
Related or minor courses	6
Electives	6
<b>Hours</b>	<b>15</b>
<b>Seventh Term</b>	
ARBC 4850	3
Related or minor course	3
Electives	6
<b>Hours</b>	<b>12</b>
<b>Eighth Term</b>	
FLAN 4980 Special Topics in Foreign Languages	3
Electives	12
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>122</b>

- PLO 1- List, distinguish and discuss what countries made up the traditional geography of the Middle East and the Greater Middle East.
- PLO 2- List and discuss the major religions of the Middle East.
- PLO 3- Explain the differences and similarities between the political systems of the Middle East.
- PLO 4- Describe how political, economic, social and cultural structures work within the region.
- PLO 5- Discuss some of the challenges facing Middle East as a region and as individual countries.
- PLO 6- Compare and contrast the cultures within the region.
- PLO 7. Language proficiency at entry or more advanced level in one of the languages of the region.
- PLO 8- Research, write, present and explain about the relationships within the countries of the region and the international community.

## Middle East Studies Minor

The minor in Middle East Studies consists of 18 credits.

### Option 1:

Code	Title	Hours
<b>Required:</b>		
MES 2400	Introduction to the Contemporary Cultures of the Middle East through Movies and Arts	3
MES 4200	Current Issues in the Middle East	3
MES 3200	The Contemporary Middle East a Historical and Modern In-Depth Overview	3
MES 3800	The Governments and Legal Systems of the Contemporary Middle East	3
2 language classes (2000 level or higher)		6
<b>Total Hours</b>		<b>18</b>

### Option 2:

Code	Title	Hours
<b>Select two:</b>		
MES 2400	Introduction to the Contemporary Cultures of the Middle East through Movies and Arts	
MES 3200	The Contemporary Middle East a Historical and Modern In-Depth Overview	
MES 3800	The Governments and Legal Systems of the Contemporary Middle East	
MES 4200	Current Issues in the Middle East	
2 language classes (2000 level or above)		6
<b>Select 6 additional credits from:</b>		
FLAN 3440	Intercultural Communication: Principles And Practice	
HIST 2040		
GEPL 4810	Political Geography	
PHIL 3500	Eastern Thought	
REL 2310	Old Testament/Tanakh	
or any courses approved by program advisor		

## Pre-Law

Sam Nelson, Advisor  
Jerry Van Hoy, Advisor

Unlike some pre-professional programs, there is no fixed pre-law curriculum. Critical reading, writing and speaking dominate legal practice and legal education; thus, the central theme of any pre-law course of study should be the development of these skills in the context of areas of substantive interest to the student. Clearly, a course of study designated "pre-law" may extend across a broad range of different disciplines and interests and contain a wide variety of courses. Each student's course of study will be different and should reflect, in consultation with advisors, the specific interests of the student and attention to the development of the critical and analytical skills necessary for success in law school and the legal profession.

## Faculty

### Department of Art

**Brian Carpenter**, 2014, Assistant Professor, A.A., B.A., University of Toledo; M.F.A., Cranbrook Academy of Art

**Jason Cox**, 2015, Assistant Professor, B.F.A., M.A.T., The Maryland Institute College of Art; Ph.D., The Ohio State University

**Daniel Hernandez**, 2012, Associate Professor, B.F.A, Northwest Missouri State University; M. F. A., American University

**Thor J. Mednick**, 2013, Professor, B.F.A., M.A., University of Southern California; Ph.D., Indiana University

**Barbara W. F. Miner**, 2000, Professor and Chair, B.F.A., State University of New York - New Paltz; M.F.A., Eastern Michigan University



**Deborah Orloff**, 1994, Professor and Associate Chair, B.F.A., Clark University; M.F.A., Syracuse University

**Mysoon Rizk**, 2000, Professor, B.A., Oberlin College; B.S., M.A., Ph.D., University of Illinois at Urbana - Champaign

**Arturo Rodriguez**, 2001, Associate Professor, B.F.A., Kansas City Art Institute; M.F.A., Indiana University – Bloomington

**Barry Whittaker**, 2011, Associate Professor, B.F.A., University of Texas; M.F.A., University of Colorado

**Eric Zeigler**, 2014, Assistant Professor, B.F.A., Bowling Green State University; M. F. A., San Francisco Art Institute

## Department of Communication

**Amy Capwell-Burns**, 2003, Senior Lecturer, B.A., Baldwin-Wallace College; M.A., Cleveland State University; Ph.D., Bowling Green State University

**Dee Drummond**, 2007, Senior Lecturer, B.A., The University of Toledo; M.A., Michigan State University

**Tasha Dunn**, 2019, Associate Professor, BA, Concordia College; MA, Eastern Illinois University; PhD, University of South Florida

**Jason Hibbs**, 2020, Assistant Lecturer, B.S., Western Kentucky University; M.S., Montana State University-Billings

**Xianlin Jin**, 2021, Assistant Professor, B.A., Journalism, Tianjin Normal University; M.A., Communication Studies, Arizona State University; Ph.D. Communication with Graduate Certificate in Risk Sciences, University of Kentucky

**Eleanor Kostecki**, 2013, Senior Lecturer, B.S., Eastern Michigan University; M.A., Western Michigan University

**Jacqueline Layng**, 1997, Professor, B.A., M.A., Ed.D., Northern Illinois University

**Tisha Mays**, 2021, Assistant Lecturer, B.A., Mass Media Radio/Television, University of Akron; M.A., Strategic Communication with Interactive Media, Bowling Green State University

**W. Benjamin Myers**, 2019, Professor and Chair, BA, Bluffton University; MA, Bowling Green State University; PhD, Southern Illinois University at Carbondale

**Fatima A. Shousher Simon**, 2004, Senior Lecturer, B.A., University of Toledo; M.A., Bowling Green State University

**Sumitra Srinivasan**, 2006, Associate Professor, B.Sc., M.A., The University of Madras; M.S., Syracuse University; Ph.D., Georgia State University

## Disability Studies Program

**Allyson Day**, 2014, Associate Professor, B.A., B.F.A., University of Maine at Framington; M.A., Simmons College; Ph.D., Ohio State University

**James Ferris**, 2008, Professor and Ability Center of Greater Toledo Endowed Chair in Disability Studies, B.A., Marquette University; M.A., University of Texas at Austin; Ph.D., Southern Illinois University at Carbondale.

**Rebecca Monteleone**, 2020, Assistant Professor, B.A., The Ohio State University; M.A., University of Kent; Ph.D., Arizona State University

**Kim E. Nielsen**, 2012, Professor and Program Director; B.A., Macalester College; M.A., Ph.D., University of Iowa

## Department of Economics

**Abiye Alamina**, 2018, Assistant Lecturer, B.Sc University of Lagos; M.Sc., University of Bristol; M.A., ABD, The Ohio State University.

**Aliaksandr Amialchuk**, 2007, Professor, B.A., Hrodno State University; M.A., National University Kyiv-Mohyla Academy; Ph.D., University of Houston

**James Bland**, 2016, Assistant Professor, B.S., M.A., The University of Melbourne; M.S., Ph.D., Purdue University

**Larry Cook**, 2006, Senior Lecturer, B.A., M.A., The University of Toledo

**Michael R. Dowd**, 1989, Associate Professor, B.A., M.A., Ph.D., State University of New York – Buffalo

**Kevin Egan**, 2005, Professor, B.A., Central College; Ph.D., Iowa State University

**Kristen Keith**, 1994, Professor and Associate Dean, B.A., University of Montana; M.A., Ph.D., The Ohio State University

**Onur Sapci**, 2016, Associate Professor, B.A., Dokuz Eylul University; Ph.D., University of Wyoming

**Oleg Smirnov**, 2006, Professor, Chair, and Graduate Director, B.S. Novosibirsk State University; M.A., West Virginia University; Ph.D., West Virginia University

## Department of English Language and Literature

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## College of Engineering

### Undergraduate Catalog 2024-2025

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### Mission Statement

We provide a diverse, equitable, and inclusive learning environment and workplace, where students obtain a transformative engineering or engineering technology education, and where educators, industry partners and students discover and transfer new knowledge to improve the human condition in the community and throughout the world.

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**Degrees Offered****Undergraduate Degree Programs**

The College of Engineering offers the following Bachelor of Science in Engineering degree programs:

- BS in Bioengineering (p. 232)
- BS in Chemical Engineering (p. 235)
- BS in Civil Engineering (p. 240)
- BS in Environmental Engineering (p. 242)
- BS in Computer Science (p. 250)
- BS in Computer Science and Engineering (p. 251)
- BS in Electrical Engineering (p. 253)
- BS in Mechanical Engineering (p. 273)

The College of Engineering also offers the following Bachelor of Science in Engineering Technology degree programs:

- BS in Computer Science and Engineering Technology (p. 257)
- BS in Construction Engineering Technology (p. 258)
- BS in Cyber Security (p. 259)
- BS in Electrical Engineering Technology (p. 261)
- BS in Information Technology (p. 263)
- BS in Mechanical Engineering Technology (p. 265)

The College of Engineering also offers a Minor in Surveying (p. 244), a Minor in Computer Science (p. 255), a Minor in Mechatronics (p. 276), a Materials Science and Engineering Certificate (p. 275), Minor in Cyber Security (p. 266), and Minor in Software Engineering (p. 266).

Students may wish to consider a dual degree plan within the College of Engineering. Depending on which two curricula are involved, careful planning from the beginning may permit the completion of both degrees with less than a full year of additional study. In any dual degree plan, the student must be accepted by both major departments and have an advisor from each of the two degree programs. With any combination, the curricular requirements of each individual degree must be met.

**ACCREDITED PROGRAMS**Learn about the College of Engineering's accredited programs. (<https://www.utoledo.edu/engineering/abet-accreditation/>)**Graduate Programs**

The College of Engineering also offers a full range of graduate programs. Refer to the Graduate School (<https://catalog.utoledo.edu/graduate/engineering/>) section for information on programs and policies specifically related to graduate students.

**Cooperative (Co-op) Education Program**

Students in the Engineering Science degree programs must complete a cooperative (co-op) educational requirement. The purpose of the co-op program is to provide students with career-related experiences. The program also helps students defray the cost of their education and enhances employment opportunities after graduation. The curriculum in each of the Bachelor of Science in Engineering degree programs is set



up to accommodate four, and in some cases five, co-op assignments. To satisfy the requirement, a student must successfully complete a minimum of three registered, semester-long work experiences, alternating with semesters of coursework. The student pays a \$475 fee when registered for each of the required co-op experiences. Successful completion of each registered work experience appears on the student's transcript. A student with a registered work experience is considered a full time student for that term.

The College will assist students in finding co-op positions, but does not guarantee placement. Elaborations on implementation policies are available in the College's Career Development Center. For students in the Engineering Technology degree programs, participation in the co-op program is optional. Students who wish to participate in this program should contact the Career Development Center in the College of Engineering at 419.530.8050.

### SPECIAL PROGRAMS FOR UNDERGRADUATES

- Early Admission to Master of Science in Engineering (p. 276)
- Joint B.S. in Engineering or Engineering Technology/M.B.A. Program (p. 276)
- Minor in Business Administration (p. 277)
- Presumptive Admission Program to the University of Toledo College of Law (p. 277)

## Accreditation

Learn about the College of Engineering's accredited programs. (<https://www.utoledo.edu/engineering/abet-accreditation/>)

## Admission Requirements

### First Time Students applying to engineering science programs

In 2020, in response to the COVID-19 pandemic, The University of Toledo implemented test-optional admission. Students who choose to be considered for admission to any Bachelor of Science program in Engineering (Bioengineering, Chemical Engineering, Civil Engineering, Computer Science, Computer Science and Engineering, Electrical Engineering, Environmental Engineering, or Mechanical Engineering) **with standardized test scores** must have earned a minimum cumulative high school GPA of 3.0 or GED average standard score of 510 in the 2002 format or 730 in the 2014 format with a Mathematical Reasoning sub-score of 190 along with a minimum ACT composite score of 22 or SAT combined score of 1110 and a minimum ACT math score of 22 or SAT math score of 550 are also required.

Students who choose to be considered for admission to any Bachelor of Science Program in Engineering (Bioengineering, Chemical Engineering, Civil Engineering, Computer Science, Computer Science and Engineering, Electrical Engineering, Environmental Engineering, or Mechanical Engineering) **without standardized test scores** require a minimum high school GPA of 3.5 and a B- grade or higher in pre-calculus at the time of consideration. If a student is currently enrolled in a Pre-Calculus course at the time of consideration, the remainder of their course history will be considered in any admission decision holistically.

All students considered for admission to Bachelor of Science Programs in also must successfully complete a minimum of four years of high school mathematics including a course that covers the topics of trigonometry or pre-calculus. Additionally, any students applying to the Bioengineering, Chemical Engineering, or Environmental Engineering programs must have completed at least one year of high school chemistry. High school physics also is strongly recommended.

Any students who do not meet the minimum requirements for the Engineering Science major in which they apply will be admitted to the Engineering Pre-Major program should they hold a 3.00 HS GPA and have achieved a B or better in Algebra II or their high school's equivalent course. If these criteria are not met, students will be admitted to the Exploratory Studies program in University College or can choose to be considered for a major in another program at the University outside of the College of Engineering.

## FIRST TIME STUDENTS APPLYING TO ENGINEERING Technology PROGRAMS

To be directly admitted to one of the Bachelor of Science in Engineering Technology programs or information technology program (Computer Science and Engineering Technology, Construction Engineering Technology, Electrical Engineering Technology, Information Technology, and Mechanical Engineering Technology) first year, full-time students need a minimum cumulative high school GPA of 2.5 or GED average standard score of 480 in the 2002 format or 700 in the 2014 format with a Mathematical Reasoning sub-score of 180. A minimum ACT composite score of 21 or SAT combined score of 1070 and a minimum ACT math score of 20 or SAT math score of 510 are also required. In 2020, in response to the COVID-19 pandemic, The University of Toledo implemented test-optional admission. Students without standardized test scores require a minimum high school GPA of 3.0 and a B- grade or higher in algebra.

Any students who do not meet the minimum requirements for Engineering Technology programs listed above will be admitted to the Pre-Major Program in the University College's Exploratory Studies Program. This program is designed to provide students with additional services and programs that will assist them in fulfilling their educational goals. Academic Advisors identify the students' goals at orientation and ensure that Pre-major students register for courses that will align with their desired engineering program at UToledo.

## Transfer Students

Transfer students seeking admission to the Bachelor of Science programs in Bioengineering, Chemical Engineering, Civil Engineering, Computer Science and Engineering, Electrical Engineering, Environmental Engineering or Mechanical Engineering must have a minimum GPA of 2.75 from all previous college or university work and have college credit equivalent to MATH 1850 and CHEM 1230, with grades of at least a C or higher.

Students transferring into the College of Engineering Bachelor of Science in Engineering Technology programs in Computer Science and Engineering Technology, Construction Engineering Technology, Electrical Engineering Technology, Information Technology and Mechanical Engineering Technology must have obtained a minimum cumulative GPA of 2.25 from all previous college or university work. Equivalent credit for

MATH 1330 or MATH 1340 with a grade of C or higher is also required for Construction Engineering Technology and Mechanical Engineering Technology. Equivalent credit for MATH 1850 or MATH 2450 with a grade of C or higher is also required for Computer Science and Engineering Technology and Electrical Engineering Technology.

Students not admitted to an engineering program may not take engineering courses unless those courses are required for a degree program outside of engineering.

Students transferring from other institutions must earn at least 32 hours of undergraduate credit in residence at The University of Toledo. At least 14 of these must be in the major area. The remaining credit hours are to be in engineering topics or in other areas that satisfy degree requirements.

Full-time students must take their last semester in residence and part-time students must take their last 14 hours in residence unless exceptional arrangements have been made in advance with the Associate Dean of Undergraduate Studies in the College of Engineering.

## Academic Policies

Students in the College of Engineering are subject to the general regulations that apply to all students enrolled in The University of Toledo. Refer to the **UToledo Policy website** (<http://www.utoledo.edu/policies/academic/undergraduate/>) for academic policies that apply to all undergraduate students. The following policies apply to undergraduate students enrolled in the College of Engineering.

### Bachelor of Science Degree Requirements

A total of 128 hours of course credit is required for all Bachelor of Science degree programs offered by the College of Engineering, not including co-op hours. To obtain a degree in an undergraduate program, students must have the proper number of credit hours in courses required for the curriculum, a minimum overall cumulative GPA of 2.0, and a minimum GPA of 2.0 in the student's major. When a course is repeated, only the grade the last time a course was taken is used in the calculation of the major GPA.

All Bachelor of Science degree programs offered by the College of Engineering have a common structure of mathematics, basic sciences, humanities/fine arts, social sciences, multicultural studies and engineering topics. A minimum of three semesters of co-operative education are required for all seven Engineering Science degree programs, and are optional for all five Engineering Technology degree programs. Engineering Technology students that opt to pursue the co-op program must complete a minimum of three semesters of co-op.

The required curriculum and recommended course sequence for each program is presented on the website of the department offering that program. These curricula permit the student to complete the Engineering Science degree requirements with co-op in five years and the Engineering Technology degree requirements without co-op in four years.

After 100 hours have been attempted, students should obtain a degree audit from the myUT portal to formulate plans for completion of the program and to receive degree approval of the Associate Dean of Undergraduate Studies. Preparation of the final semester schedules

should be completed to insure that all degree requirements will be met. Application for graduation should be made to the via the myUT portal before the published deadline, in accordance with the procedures noted on the Registrar's website (<http://www.utoledo.edu/offices/registrar/graduation.html>).

### DEGREE AUDIT REQUIREMENT (DARS)

The Degree Audit Reporting System is an automated record that contains all of a student's graduation requirements and tracks that student's progress toward meeting those requirements. Degree audits are available to students upon request from the Office of Student Retention and Academic Success and online through the myUT portal Student Self-Service. Students are encouraged to keep current degree audits for their personal use and to discuss their degree audits with their academic advisers.

### Class Rank

Class rank is determined as follows:

- Freshman: 0-29 earned hours
- Sophomore: 30-59 earned hours
- Junior: 60-89 earned hours
- Senior: 90+ earned hours

### DEGREE AUDIT REQUIREMENT (DARS)

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### EVALUATION OF TRANSFER COURSES

The College of Engineering Office of Undergraduate Studies assists in the evaluation of engineering coursework based on course equivalencies determined by the appropriate academic unit as coordinated through the Registrar's Office. In many cases, courses from other universities/colleges have been pre-approved for equivalency and will transfer with confirmation. The evaluation of non-engineering coursework is coordinated by the Registrar's Office and completed by the appropriate corresponding college.

### Pass/No Credit Option

Engineering students do not have the option to take any coursework on a pass/no credit basis.

### Repeated Courses AND GPA Recalculation

Students may repeat a previously attempted course. If the grade in the repeated course is higher, the student may petition the college in which the course is taught to have the initial grade excluded from the overall GPA calculation. There is a limit of 18 total credit hours eligible for GPA recalculation; please see the GPA Recalculation policy (<http://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-07%20Repeating%20a%20course%20and%20recalculation%20of%20GPA.pdf>) for details. Note that all grades, including those for repeated courses, will be included in

the determination of eligibility for graduation honors, fellowships, or other distinctions awarded on the basis of GPA. However, when a course in the major is repeated, only the grade the last time the course is taken is used in the major GPA calculation as described in the Bachelor of Science Degree Requirements section above.

## Required Academic Performance

All students are expected to maintain a minimum cumulative GPA of 2.0. A student who achieves a cumulative GPA below 2.0 will be placed on probation and is expected to achieve a term GPA above 2.0 during subsequent semesters in order to achieve a cumulative GPA above 2.0. A term GPA below 2.0 while on probation could lead to suspension or dismissal as described in the Academic Standing (<http://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-01%20Academic%20standing.pdf>) policy.

### Readmission from suspension or dismissal

Suspended or dismissed students must submit a written petition to the Associate Dean of Undergraduate Studies in order to gain readmission after the term of suspension or dismissal has been completed. Readmission decisions will be made by the Associate Dean of Undergraduate Studies in conjunction with the Undergraduate Program Director of the degree program to which the student is requesting readmission. Readmission petitions must be received before 5 pm on July 15th for Fall readmission, before 5 pm on November 15th for Spring readmission, and before 5 pm on April 1st for Summer readmission.

Note that there are no appeals to receive an early readmission to the College of Engineering following a suspension or dismissal. Readmission petitions will only be considered after the full suspension or dismissal term has been served.

## Student Services

### Undergraduate Academic Advising

Undergraduate academic advising is provided by each department in the College of Engineering for students who are currently in one of the department's majors. Engineering undergraduate students have a support structure that includes their assistant/associate director of student services (staff member) and their undergraduate program director (faculty member). The individuals below are the assistant/associate directors of student services who manage the academic advising for engineering students.

If you are not in the College of Engineering or in the engineering major you wish to pursue, please contact the Associate Director of Engineering Transfer Programs. The information is listed below.

### Bioengineering (BIOE)

Darlene Stevens, M.A., Assistant Director  
Darelene.Stevens@utoledo.edu (Robin.VanHoy@utoledo.edu)  
419-530-8078  
NI 5051

Faculty Undergraduate Program Director  
Eda Yildirim-Ayan  
Eda.YildirimAyan@utoledo.edu  
419-530-8257



NI 5031

### Chemical Engineering (CHME)

Chanda Raine, M.Ed., Associate Director  
Chanda.Raine@utoledo.edu (Chanda.Raine@utoledo.edu)  
419-530-8096  
NI 3050

Faculty Undergraduate Program Director  
Yakov Lapitsky  
yakov.lapitsky@utoledo.edu (dong.kim@utoledo.edu)  
419-530-8224  
NI 3056

### Civil Engineering and Environmental Engineering (CVLE or ENVE)

Kyle Sawyer M.A., Assistant Director  
kyle.sawyer@utoledo.edu (bryan.bosch@utoledo.edu)  
419-530-8114  
NI 3006

Faculty Undergraduate Program Director  
Alex Spivak  
alex.spivak@utoledo.edu (douglas.nims@utoledo.edu)  
419-530-8122  
NI 3006-F

### Electrical Engineering and Computer Science and Engineering (ELCE or CSE)

Christie Hennen, M.E., Associate Director  
christina.hennen@utoledo.edu  
419-530-3853  
NI 2008

Faculty Undergraduate Program Director  
Ahmed Javaid  
ahmed.javaid@utoledo.edu (joseph.hobbs@utoledo.edu)  
419-530-8061

### Mechanical Engineering (MECE)

Debbie Kraftchick, MSIE, Associate Director  
mimeadvising@utoledo.edu  
419-530-8210  
NI 4006

Faculty Undergraduate Program Director  
Sorin Cioc  
sorin.cioc@utoledo.edu (matthew.franchetti@utoledo.edu)  
419-530-8051  
NI 4006 E

### Engineering Technology (ET)

Majors:

- Computer science and engineering technology (CSET)
- Construction engineering technology (CET)
- Electrical engineering technology (ELCT or also known as EET)
- Information Technology (ITCE or also known as IT or BSIT)

· Mechanical engineering technology (MCHT or also known as MET)

Myrna Rudder, Associate Director  
myrna.rudder@utoledo.edu  
419-530-3062  
NI 1600

Faculty Undergraduate Program Director  
CET - Luis Mata  
luis.mata@utoledo.edu  
419-530-3167  
NE 1615

CSET & IT - S (<http://www.utoledo.edu/engineering/engineering-technology/cset/oluoch.html>)cott Brahaney  
scott.brahaney@utoledo.edu (jared.oluoch@utoledo.edu)  
419-530-3272  
NE 1613

ELCT - T (<http://www.utoledo.edu/engineering/engineering-technology/cset/oluoch.html>)ed Evans  
william.evans@utoledo.edu (jared.oluoch@utoledo.edu)  
419-530-3349  
NE 1607

MCHT - Amy Bian  
amy.bian@utoledo.edu (jared.oluoch@utoledo.edu)  
419-530-3377  
NE 1609

#### Office of Undergraduate Studies- Undecided engineering, transfers, and change of majors:

Bryan Bosch  
bryan.bosch@utoledo.edu (Emily.creamer@utoledo.edu)  
419-530-8038  
NI 1014-A

## Honors Program

The Honors Program in the College of Engineering provides opportunities for challenging and individual study to undergraduate students of unusually high ability, motivation and initiative. Students with a minimum high school GPA of 3.5 and a minimum ACT composite of 25 are encouraged to apply. Current University of Toledo students and transfer students may apply for admission to the Honors Program if they have completed at least 15, but not more than 60, graded semester hours with a minimum UT GPA of at least 3.5, and have been interviewed by an honors advisor. All admissions to the Honors Program are granted on a space-available basis.

To receive the College Honors citation upon graduation from an engineering bachelor's degree program, the following criteria must be met:

1. A minimum GPA of 3.3 for all college coursework;
2. A minimum of 27 semester hours in honors courses;
3. Completion of HON 1010, HON 2010 and HON 3010;

4. A minimum of 10 semester hours of honors courses offered by the College of Engineering;
5. An honors thesis or honors project.

## Professional Registration

Registration by the State of Ohio as a Professional Engineer is important for professional practice and requires four to eight years of engineering experience after graduation. The first step is applying for and passing the Fundamentals of Engineering (FE) examination, a computer-based exam given during four two-month windows each year at testing centers around the state. Application deadlines for these examinations are several months before testing dates.

All engineering graduates are strongly encouraged to take the FE near their date of graduation and are permitted to sit for the exam during their final semester of enrollment prior to graduation. After four years of acceptable engineering experience, the State Board of Registration will permit the engineering graduate to take the Professional Engineers (PE) examination. Engineering technology graduates must pass the FE exam and need a minimum of eight years of acceptable engineering experience before taking the PE exam.

Applications should be filed to meet published deadlines of the National Council of Examiners for Engineering and Surveying and the State Board of Registration in Columbus. Additional information is available in the Ohio Board of Professional Engineers and Surveyors at <http://www.peps.ohio.gov/> or from the National Council of Examiners for Engineering and Surveying at <http://ncees.org>.

The undergraduate engineering degree programs are intended to prepare students with no prior experience for Professional Engineer Licensure. Successful completion of the UT engineering programs satisfies the academic requirements for professional engineering credentialing set forth by the Ohio Board of Professional Engineers and Surveyors of the State of Ohio. As licensure requirements may vary by state, if you intend to practice in a state outside of Ohio, please review this website for eligibility for licensure in that state at [utoledo.edu/offices/internalaudit/institutional-compliance/state-authorization/pld-stateengineerandsurveyorboards.html](http://utoledo.edu/offices/internalaudit/institutional-compliance/state-authorization/pld-stateengineerandsurveyorboards.html) (<https://www.utoledo.edu/offices/internalaudit/institutional-compliance/state-authorization/pld-stateengineerandsurveyorboards.html>).

## Learning Outcomes

### Undergraduate Degree Programs of Study

**The Bachelor of Science in Engineering degree programs accredited by the Engineering Accreditation Commission (EAC) of ABET must demonstrate that their graduates attain the following outcomes:**

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences

- An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

**The Bachelor of Science in Engineering Technology degree programs accredited by the Engineering Technology Accreditation Commission (ETAC) of ABET must demonstrate that their graduates attain the following outcomes:**

- An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;
- An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
- An ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and
- An ability to function effectively as a member as well as a leader on technical teams.

**The Bachelor of Science in Engineering and Engineering Technology degree programs accredited by the Computing Accreditation Commission (CAC) of ABET must demonstrate that their graduates will have the ability to:**

- Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions
- Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline
- Communicate effectively in a variety of professional contexts
- Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles
- Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline
- Apply computer science theory and software development fundamentals to produce computing-based solutions (CAC CS Program Criteria).

- Use systemic approaches to select, develop, apply, integrate, and administer secure computing technologies to accomplish user goals. (IT Program Criteria).

## Department of Bioengineering

**Brent D. Cameron, Professor, Chair**

**Nitschke Hall Room 5051**

Phone: 419.530.8030

Fax: 419.530.8076

brent.cameron@utoledo.edu

Eda Yildirim-Ayan, Undergraduate Program Director

eda.yildirimayan@utoledo.edu

Halim Ayan, Graduate Program Director

halim.ayan@utoledo.edu

Darlene Stevens, Assistant Director of Dept. Student Services

darlene.stevens@utoledo.edu (robin.vanhoy@utoledo.edu)

The Department of Bioengineering offers an ABET-accredited Bachelor of Science in Bioengineering degree program that features more than 45 hours of Bioengineering courses taught by award-winning faculty, an integrated co-operative education experience and a combined Bacc2MD Pathway program offered in conjunction with the University of Toledo College of Medicine.

## Degrees Offered

- BS in Bioengineering (p. 232)

### **BIOE 1000 Orientation and Introduction to Bioengineering Computing**

[0-2 credit hours]

Application of graphical design and numerical analysis software required for the solution of bioengineering problems. This course also provides a one-semester overview of key engineering principles and concepts.

**Term Offered:** Fall

### **BIOE 1010 Professional Development**

[1 credit hour]

Preparation for co-op and full-time employment in industry. Topics include resume writing, interviewing skills, compensation and benefits, social protocol and corporate ethics, biomedical ethics, design and quality control processes and governmental regulation.

**Prerequisites:** BIOE 1200 with a minimum grade of D- and ENGL 1110 with a minimum grade of D

**Term Offered:** Spring

### **BIOE 1200 Introduction to Bioengineering Applications**

[0-2 credit hours]

Application of graphical design and numerical analysis software required for the solution of bioengineering problems. This course also provides a one-semester overview of key engineering principles and concepts.

**Prerequisites:** BIOE 1000 with a minimum grade of D-

**Term Offered:** Spring



**BIOE 1410 Freshman Design Innovation I**

[1 credit hour]

Basic concepts for biomedical device design and development and incorporating innovation and entrepreneurial mindset in freshman bioengineering students using team- and project-based learning experiences.

**Term Offered:** Fall**BIOE 1420 Freshman Design Innovation II**

[1 credit hour]

Basic concepts for biomedical device design and development and incorporating entrepreneurial mindset in freshman bioengineering students using team- and project-based learning experiences.

**Prerequisites:** BIOE 1410 with a minimum grade of D-**Term Offered:** Spring**BIOE 2100 Bioengineering Thermodynamics**

[0-3 credit hours]

Principles of thermodynamics and conservation of mass applied to living systems, biomedical devices and bioprocesses.

**Prerequisites:** PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D- and CHEM 1240 with a minimum grade of D- and MATH 2850 with a minimum grade of D- or MATH 2950 with a minimum grade of D-**Term Offered:** Spring, Fall**BIOE 2200 Biomaterials**

[3 credit hours]

Physical and chemical properties of materials commonly used in medicine. Topics include inflammatory, immunogenic, carcinogenic and toxicologic responses within host tissues as well as testing and evaluation strategies for effective use of materials in medicine and biology.

**Prerequisites:** PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D- and (MATH 1860 with a minimum grade of D- or MATH 1930 with a minimum grade of D-) and CHEM 1240 with a minimum grade of D-**Term Offered:** Spring, Fall**BIOE 2300 Biomedical Quality Control**

[3 credit hours]

Statistical methods for the design, testing and manufacturing of medical devices# the application of statistical methods to quality systems and process validation.

**Prerequisites:** (MATH 1860 with a minimum grade of D- or MATH 1930 with a minimum grade of D-)**Term Offered:** Spring**BIOE 3110 Introduction To Biomechanics**

[3 credit hours]

Mechanics of the human musculoskeletal system and its joints. Basic concepts for deformable body mechanics, including stress and strain analysis, viscoelasticity, and applications to common problems in orthopedic biomechanics.

**Prerequisites:** (CIVE 1150 with a minimum grade of D- and BIOL 2170 with a minimum grade of D-)**Term Offered:** Spring**BIOE 3300 Biomedical Electronics**

[3 credit hours]

Measurement circuits, signal analysis, and computer design in biological systems and medicine. Electronic devices, digital devices, amplifier design and instrumentation safety.

**Prerequisites:** (EECS 2300 with a minimum grade of D- and BIOE 1200 with a minimum grade of D-)**Term Offered:** Spring, Fall**BIOE 3400 Biotransport Phenomena**

[3 credit hours]

The quantitative description of momentum transport (viscous flow) and mass transport (convection and diffusion) in living systems. Application of engineering methods to model and quantify aspects of bioengineering systems.

**Prerequisites:** BIOE 2100 with a minimum grade of D- and MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-**Term Offered:** Spring, Fall**BIOE 3500 Bioprocessing Laboratory**

[0-3 credit hours]

Introduction to processing techniques used in biotechnology and pharmaceutical industries. The process from concept to product is covered, including the creation and culture of recombinant organisms to synthesize a protein product and the extraction, purification, and assay of the final product.

**Prerequisites:** (BIOL 2170 with a minimum grade of D- and BIOL 2180 with a minimum grade of D- and CHEM 1240 with a minimum grade of D-) and (MATH 1860 with a minimum grade of D- or MATH 1930 with a minimum grade of D-)**Term Offered:** Spring, Fall**BIOE 3940 Co-Op Experience**

[1 credit hour]

Approved co-op experience. Course may be repeated.

**Prerequisites:** BIOE 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**BIOE 3950 Co-Op Experience**

[1 credit hour]

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

**Prerequisites:** BIOE 3940 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**BIOE 4100 Physiology And Anatomy For Bioengineers**

[3 credit hours]

Review and study of general physiological principles and bioengineering perspectives of the human circulatory, respiratory, digestive, immune, nervous, muscular and excretory systems.

**Prerequisites:** BIOL 2170 with a minimum grade of D- and BIOL 2180 with a minimum grade of D- and CHEM 1240 with a minimum grade of D- and EECS 2300 (may be taken concurrently) with a minimum grade of D-**Term Offered:** Spring, Fall

**BIOE 4110 Advanced Biomechanics**

[3 credit hours]

The goal of this course is for students to be able to describe motions of the human body. Three-dimensional analysis and measurements of human body movements including kinematics, kinetics and energetics of human gait, anthropometry and application to bioengineering and orthopedics will be presented. Euler angles and the screw axis method will be used to describe three-dimensional motions.

**Prerequisites:** BIOE 3110 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4120 Biosignal Processing**

[3 credit hours]

Design and application of analog and digital signal processors to biomedical signals. Covered topics include the Laplace transform, analog filter design, continuous and discrete Fourier transform, and FIR/IIR digital filter design.

**Prerequisites:** BIOE 1000 with a minimum grade of D- and EECS 2300 with a minimum grade of D- and MATH 2860 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4140 Biomedical Instrumentation Laboratory**

[0-2 credit hours]

Design and construction of medical instrumentation, including aspects of signal and image processing, computer integration, and software development. Written skills are emphasized through laboratory report organization, documentation of results, error analysis and interpretation of findings.

**Prerequisites:** BIOE 3300 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4320 Advanced Biomedical Quality Control**

[3 credit hours]

Advanced statistical methods for the design, testing and manufacturing of medical devices; the application of advanced statistical methods to quality systems and process validation.

**Prerequisites:** BIOE 4300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4410 Bioengineering Design Project I**

[3 credit hours]

This course integrates the engineering and life science backgrounds of senior bioengineering students through the presentation of design principles for problems in biomechanical, bioelectrical, biochemical and biological systems. Oral and written communication, engineering economics and business plans are reviewed.

**Prerequisites:** MATH 2860 with a minimum grade of D- and EECS 2300 with a minimum grade of D- and CIVE 1150 with a minimum grade of D- and BIOE 3940 with a minimum grade of D- and BIOE 2100 with a minimum grade of D- and (BIOE 2300 with a minimum grade of D- or BIOE 4300 with a minimum grade of D-) and BIOE 3500 with a minimum grade of D- and BIOE 2200 with a minimum grade of D- and BIOE 1200 with a minimum grade of D- and BIOE 1420 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4420 Bioengineering Design Project II**

[3 credit hours]

A continuation of BIOE 4410. Teams of senior bioengineering students solve problems in biomechanical, bioelectrical, biochemical and biological systems through a design project. Ethics discussions, testing and evaluation of designs, progress reports, oral presentations and a written final report are required.

**Prerequisites:** BIOE 3110 with a minimum grade of D- and BIOE 3400 with a minimum grade of D- and BIOE 3300 with a minimum grade of D- and BIOE 4140 with a minimum grade of D- and BIOE 4100 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4620 Biochemical Engineering**

[3 credit hours]

The application of engineering principles to the design and analysis of biological processes that employ living organisms for the production of biochemicals.

**Prerequisites:** BIOE 3500 with a minimum grade of D- and BIOE 3400 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4630 Bioseparations**

[3 credit hours]

Introduction to, analysis and industrial design of processes required to separate and purify proteins and other biological compounds for the downstream processing of bioreactor products. The separations techniques will include filtration, chromatography and crystallization.

**Prerequisites:** BIOE 3400 with a minimum grade of D- or CHEE 3120 with a minimum grade of D-

**Term Offered:** Fall

**BIOE 4640 Medical Imaging**

[3 credit hours]

Mathematics and physics underlying major medical imaging modalities including X-ray radiography and computerized tomography (CT), magnetic resonance imaging (MRI), nuclear medicine imaging, and ultrasound imaging.

**Prerequisites:** (BIOE 2300 with a minimum grade of D- or BIOE 4300 with a minimum grade of D-) and MATH 2860 with a minimum grade of D- and PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4710 Biomechanics Of Soft And Hard Tissues**

[3 credit hours]

Composite and hierarchical models bones; models of bone remodeling. Soft tissues models: linear and nonlinear viscoelasticity, Fung's quasilinear viscoelastic theory. Biphasic and triphasic models and mechano-ionic interactions.

**Prerequisites:** BIOE 3110 with a minimum grade of D-

**Term Offered:** Fall

**BIOE 4730 Computational Bioengineering**

[3 credit hours]

Introduction to and utilization of computational packages for bioengineering applications. Introduction to finite element analysis and applications in biochemical, biofluidics, bioheat transfer, optimization.

**Prerequisites:** (BIOE 3110 with a minimum grade of D- and BIOE 1200 with a minimum grade of D-)

**Term Offered:** Spring

**BIOE 4740 Tissue Engineering**

[3 credit hours]

Application of principles from engineering and the life sciences toward the development of biological substitutes that restore, maintain or improve tissue function.

**Prerequisites:** (BIOE 2200 with a minimum grade of D- and BIOE 4100 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**BIOE 4750 Experimental Methods In Orthopedic Biomechanics**

[3 credit hours]

This course provides students with experience in experimental techniques used in orthopaedics and in the study of the musculoskeletal system including mechanical testing of different materials, experimental and analytical methods for stress analysis, strain gages, methods used in human motion analysis to include motion capture, force pressure plates and electromyography. Students will learn to analyze human motion by capturing movements of their choice and will then conduct a biomechanical analysis to quantitatively describe their capture movements.

**Prerequisites:** BIOE 3110 with a minimum grade of D- or CIVE 1160 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4830 Additive Manufacturing**

[3 credit hours]

Additive manufacturing (AM) is a method of manufacturing that has been growing rapidly. In this course the students will learn about various AM technologies. They will also work with the required design software packages to create 3D models and 3D-print objects from the designed models.

**Prerequisites:** MIME 2650 (may be taken concurrently) with a minimum grade of D- or BIOE 1000 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**BIOE 4980 Bioengineering Special Topics**

[1-3 credit hours]

Selected subjects in the field of bioengineering with intensive investigation of the recent literature in a few areas of special interest to the class and the professor.

**Term Offered:** Spring, Fall

**BIOE 4990 Bioengineering Independent Study**

[1-3 credit hours]

The student, under the guidance of their research adviser, explores in-depth specific areas or topics related to their research.

**Term Offered:** Spring, Summer, Fall

## BS in Bioengineering

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
BIOE 1000	Orientation and Introduction to Bioengineering Computing	2
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 1850	Single Variable Calculus I	4
ENGL 1110	College Composition I	3

BIOE 1410	Freshman Design Innovation I	1
<b>Hours</b>		<b>15</b>

**Second Term**

BIOE 1200	Introduction to Bioengineering Applications	2
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
MATH 1860	Single Variable Calculus II	4
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1

BIOE 1420	Freshman Design Innovation II	1
<b>Hours</b>		<b>17</b>

**Third Term**

CIVE 1150	Engineering Mechanics: Statics	3
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
MATH 2850	Elementary Multivariable Calculus	4
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1

<b>Hours</b>		<b>17</b>
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**Fourth Term**

BIOE 1010	Professional Development	1
BIOE 2200	Biomaterials	3
MATH 2860	Elementary Differential Equations	3
BIOE 2300	Biomedical Quality Control	3
BIOE 3110	Introduction To Biomechanics	3
BIOE 2100	Bioengineering Thermodynamics	3

<b>Hours</b>		<b>16</b>
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**Fifth Term**

ENGL 2950	Technical Writing	3
Arts/Humanities Core		3
Social Sciences Core		6
Diversity of US		3

<b>Hours</b>		<b>15</b>
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**Sixth Term**

BIOE 3940	Co-Op Experience	1
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<b>Hours</b>		<b>1</b>
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**Seventh Term**

BIOE 3500	Bioprocessing Laboratory	3
BIOE 4100	Physiology And Anatomy For Bioengineers	3
EECS 2300	Electric Circuits	4
Technical Electives		6

<b>Hours</b>		<b>16</b>
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**Eighth Term**

BIOE 3940	Co-Op Experience	1
	<b>Hours</b>	<b>1</b>

**Ninth Term**

BIOE 3300	Biomedical Electronics	3
BIOE 3400	Biotransport Phenomena	3
BIOE 4140	Biomedical Instrumentation Laboratory	2
Technical Elective		3
BIOE 4410	Bioengineering Design Project I	3
	<b>Hours</b>	<b>14</b>

**Tenth Term**

BIOE 3940	Co-Op Experience	1
	<b>Hours</b>	<b>1</b>

**Eleventh Term**

BIOE 4120	Biosignal Processing	3
BIOE 4750	Experimental Methods In Orthopedic Biomechanics	3
BIOE 4420	Bioengineering Design Project II	3
BIOE Technical Elective		3
Arts/Humanities Core/Non-US Diversity		3
	<b>Hours</b>	<b>15</b>
	<b>Total Hours</b>	<b>128</b>

- PLO 1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- PLO 2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- PLO 3. An ability to communicate effectively with a range of audiences
- PLO 4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- PLO 5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- PLO 6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- PLO 7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## Department of Chemical Engineering

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Details about the Department of Chemical Engineering can be found at:  
<https://www.utoledo.edu/engineering/chemical-engineering/>

## Degrees Offered

- BS in Chemical Engineering (p. 235)

### CHEE 1000 Orientation And Computing For Chemical and Environmental Engineers

[0-3 credit hours]

An introduction to the UToledo campus, campus resources, the College of Engineering, and Chemical and Environmental Engineering. Primary emphasis is on engineering computing, data analysis, and basic chemical engineering calculations.

**Term Offered:** Fall

### CHEE 1010 Professional Development

[1 credit hour]

Social protocol and ethics in industry. Resume writing and interview skills are presented in preparation for the Co-op experience. Review of resource materials for technical and non-technical individual learning. Oral and written presentation techniques are emphasized.

**Prerequisites:** CHEE 1000 with a minimum grade of D-

**Term Offered:** Spring

### CHEE 2010 Mass And Energy Balances

[3 credit hours]

Introduction to the principles and techniques used in chemical engineering. Basic concepts of mathematics, physics and chemistry are applied to solving problems involving stoichiometry, material balances and energy balances.

**Prerequisites:** CHEE 1000 with a minimum grade of D- and (MATH 1850 (may be taken concurrently) with a minimum grade of D- and CHEM 1230 (may be taken concurrently) with a minimum grade of D-)

**Term Offered:** Spring

### CHEE 2110 Process Fluid Mechanics

[3 credit hours]

A comprehensive introduction to process fluid mechanics. Topics include: hydrostatics, characteristics of laminar and turbulent flow, mechanical energy balance, flow through packed beds and fluidization of solids, design of pumping systems and piping networks and metering of fluids.

**Prerequisites:** CHEE 2010 with a minimum grade of D- and MATH 1860 with a minimum grade of D-

**Term Offered:** Spring



**CHEE 2230 Chemical Engineering Thermodynamics I**

[3 credit hours]

The principles of thermodynamics and their application to chemical engineering. Topics include states and properties of matter, the first and second law of thermodynamics and thermo-chemical effects.

**Prerequisites:** CHEE 2010 with a minimum grade of D- and MATH 1850 with a minimum grade of D- and MATH 1860 (may be taken concurrently) with a minimum grade of D- and CHEM 1240 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Fall**CHEE 2330 Chemical Engineering Thermodynamics II**

[3 credit hours]

Topics include properties of fluid mixtures, phase equilibria, chemical equilibria, power generation and refrigeration processes.

**Prerequisites:** CHEE 2230 with a minimum grade of D- and MATH 1860 with a minimum grade of D- and CHEE 2010 with a minimum grade of D- and CHEM 1240 with a minimum grade of D-

**Term Offered:** Spring, Summer**CHEE 3030 Separation Processes**

[3 credit hours]

An introduction to equilibrium-based separation processes. Topics include distillation, extraction, leaching, drying and membrane separations. Preliminary equipment design calculations.

**Prerequisites:** CHEE 2330 with a minimum grade of D-

**Term Offered:** Spring, Fall**CHEE 3110 Process Heat Transfer**

[3 credit hours]

Fundamental equations of heat transfer. Fourier's law. Steady and unsteady thermal conduction. Heat transfer coefficients. Condensation and boiling. Forced and natural convection. Radiation, Kirchoff's law and view factors. Design of different types of heat exchangers.

**Prerequisites:** CHEE 2110 (may be taken concurrently) with a minimum grade of D- and CHEE 2230 with a minimum grade of D-

**Corequisites:** CHEE 2110**Term Offered:** Spring**CHEE 3120 Mass Transfer**

[3 credit hours]

Mass transfer and its application in chemical engineering separations. Diffusivity, mass transfer coefficients and Fick's Law. Applications in continuous and stagewise processes, including absorption, extraction and distillation.

**Prerequisites:** (CHEE 2110 with a minimum grade of D- and CHEE 3030 (may be taken concurrently) with a minimum grade of D-) and MATH 2850 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Fall**CHEE 3300 Reactor Engineering And Design**

[3 credit hours]

Fundamentals of chemical reaction engineering. Rate laws, kinetics and mechanisms of homogeneous and heterogeneous reactions. Analysis of reaction rate data. Design of industrial reactors.

**Prerequisites:** CHEE 2230 with a minimum grade of D- and CHEM 2410 with a minimum grade of D- and MATH 2850 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Fall**CHEE 3400 Process Dynamics And Control**

[3 credit hours]

An introduction to designing control systems for chemical engineering processes. Process stability and controller design and selection.

Application of Laplace transforms, frequency response techniques and simulation software for open-loop and closed-loop analysis.

**Prerequisites:** CHEE 3300 with a minimum grade of D- and MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D- and CHEE 2110 with a minimum grade of D-

**Term Offered:** Fall**CHEE 3940 Co-Op Work Experience**

[1 credit hour]

Approved co-op work experience. Course may be repeated.

**Prerequisites:** CHEE 1010 with a minimum grade of D- and CHEE 2010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**CHEE 3950 Co-Op Experience**

[1 credit hour]

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

**Prerequisites:** CHEE 3940 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**CHEE 4010 Green Engineering Principles**

[3 credit hours]

The principles of chemical process analysis and design are introduced for the development of the green engineering processes. Common components of chemical processes are reviewed and quantitative analyses of process performance and economics developed. The impact of design variables on material and energy usage is demonstrated.

**Prerequisites:** CHEM 1240 with a minimum grade of D-

**Term Offered:** Spring, Fall**CHEE 4110 Green Engineering Applications**

[3 credit hours]

Applications of green engineering principles in the chemical industry are discussed. Metrics for comparing process options are introduced along with common techniques for improving process performance.

**Prerequisites:** CHEE 4010 with a minimum grade of D-

**Corequisites:** CHEE 4520**Term Offered:** Spring, Fall**CHEE 4120 Biofuels**

[3 credit hours]

The technical, economic, social, and political issues associated with energy consumption are discussed. The potential for biofuels to replace current energy sources is examined based on the historical evolution of the industry and current research activity

**Prerequisites:** CHEM 1230 with a minimum grade of D-

**Term Offered:** Spring

**CHEE 4410 Bioseparations**

[3 credit hours]

Introduction to, analysis and industrial design of processes required to separate and purify proteins and other biological compounds for the downstream processing of bioreactor products. The separations techniques will include filtration, chromatography and crystallization.

**Prerequisites:** BIOE 3400 with a minimum grade of D- or CHEE 3120 with a minimum grade of D-

**Term Offered:** Fall

**CHEE 4500 Chemical Engineering Laboratory I**

[3 credit hours]

An experimental study of the design and performance of selected chemical engineering processes and equipment. Analysis of data, design of experiments and laboratory reports are emphasized.

**Prerequisites:** (CHEE 2110 with a minimum grade of D- and CHEE 3030 with a minimum grade of D- and CHEE 3110 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**CHEE 4520 Chemical Process Economics And Design**

[3 credit hours]

Chemical equipment and process design. Introduction to simulation and flow-sheeting techniques and software. Topics include plant safety and pollution prevention, market analysis, cost estimating, decision making and cash flow analysis.

**Prerequisites:** CHEE 2110 with a minimum grade of D- and CHEE 2330 with a minimum grade of D- and CHEE 3030 with a minimum grade of D- and CHEE 3110 with a minimum grade of D- and CHEE 3940 with a minimum grade of PS

**Term Offered:** Spring, Summer

**CHEE 4540 Chemical Process Simulation And Design**

[3 credit hours]

Application of chemical engineering fundamentals and the use of process simulators in the synthesis of chemical processes. Use of cost factors and environmental considerations in process decisions. The solution of a comprehensive case study and the preparation of a formal report are required.

**Prerequisites:** CHEE 3120 with a minimum grade of D- and CHEE 4520 with a minimum grade of D- and CHEE 3300 with a minimum grade of D-

**Term Offered:** Fall

**CHEE 4550 Chemical Engineering Laboratory II**

[3 credit hours]

An experimental study of the design and performance of selected chemical engineering process equipment, focusing on heat and mass transfer and process control. Design of experiments, analysis of data, and presentation techniques are emphasized.

**Prerequisites:** (CHEE 3300 (may be taken concurrently) with a minimum grade of D- and CHEE 3120 (may be taken concurrently) with a minimum grade of D- and CHEE 3400 (may be taken concurrently) with a minimum grade of D-) and CHEE 4500 with a minimum grade of D-

**Term Offered:** Fall

**CHEE 4800 Polymer Science And Engineering**

[3 credit hours]

Polymerization processes, characterization, structure and properties of polymers, processing and engineering applications of the major polymer types.

**Term Offered:** Fall

**CHEE 4960 Senior Honors Thesis**

[3 credit hours]

Independent research under the guidance of a faculty member, requiring an oral report and a written thesis upon completion of work.

**Term Offered:** Spring, Summer, Fall

**CHEE 4980 Special Topics In Chemical Engineering**

[1-4 credit hours]

Special topics of interest to chemical engineers - upper division.

**Term Offered:** Spring, Summer, Fall

**CHEE 4990 Independent Studies In Chemical Engineering**

[1-4 credit hours]

Independent studies in chemical engineering - upper division.

**Term Offered:** Spring, Summer, Fall

## BS in Chemical Engineering

Below is a sample plan of study. Consult your degree audit for your program requirements.

### Bachelor of Science in Chemical Engineering

First Term		Hours
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 1850	Single Variable Calculus I	4
CHEE 1000	Orientation And Computing For Chemical and Environmental Engineers	3
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>15</b>
Second Term		Hours
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
MATH 1860	Single Variable Calculus II	4
COMM 1010	Comm Principles And Practices	3
CHEE 1010	Professional Development	1
CHEE 2010	Mass And Energy Balances	3
<b>Hours</b>		<b>16</b>
Third Term		Hours
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
MATH 2850	Elementary Multivariable Calculus	4
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
CHEE 2230	Chemical Engineering Thermodynamics I	3
<b>Hours</b>		<b>16</b>
Fourth Term		Hours
MATH 2860	Elementary Differential Equations	3
CHEM 2420	Organic Chemistry II	3

CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
CHEE 2330	Chemical Engineering Thermodynamics II	3
Social Sciences Core		3
Elective		3
<b>Hours</b>		<b>16</b>
<b>Fifth Term</b>		
CHEE 3940	Co-Op Work Experience	1
<b>Hours</b>		<b>1</b>
<b>Sixth Term</b>		
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
Advanced Chemistry Elective		3
CHEE 2110	Process Fluid Mechanics	3
CHEE 3030	Separation Processes	3
CHEE 3110	Process Heat Transfer	3
<b>Hours</b>		<b>17</b>
<b>Seventh Term</b>		
CHEE 3940	Co-Op Work Experience	1
<b>Hours</b>		<b>1</b>
<b>Eighth Term</b>		
Advanced Chemistry Elective		3
Engineering Elective		3
CHEE 3120	Mass Transfer	3
CHEE 3300	Reactor Engineering And Design	3
CHEE 4500	Chemical Engineering Laboratory I	3
ENGL 2950	Technical Writing	3
<b>Hours</b>		<b>18</b>
<b>Ninth Term</b>		
CHEE 3940	Co-Op Work Experience	1
<b>Hours</b>		<b>1</b>
<b>Tenth Term</b>		
Diversity of US		3
Social Sciences Core		3
Social Sciences Core		3
Engineering Elective		3
CHEE 4520	Chemical Process Economics And Design	3
<b>Hours</b>		<b>15</b>
<b>Eleventh Term</b>		
Advanced Science Elective		3
CHEE Elective		3
CHEE 3400	Process Dynamics And Control	3
CHEE 4540	Chemical Process Simulation And Design	3
CHEE 4550	Chemical Engineering Laboratory II	3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>131</b>

- PLO 1. Students will demonstrate an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- PLO 2. Students will demonstrate an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- PLO 3. Students will demonstrate an ability to communicate effectively with a range of audiences
- PLO 4. Students will demonstrate an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- PLO 5. Students will demonstrate an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- PLO 6. Students will demonstrate an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- PLO 7. Students will demonstrate an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

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## Degrees Offered

- BS in Civil Engineering (p. 240)
- BS in Environmental Engineering (p. 242)
- Minor in Environmental Engineering (p. 244)
- Minor in Surveying (p. 244)

### CIVE 1000 Freshman Civil Engineering Experience

[0-1 credit hours]

Computer literacy, report writing, word processing, table creation, equation, equation writing, data manipulation, data graphical plotting. Introduction to various disciplines in Civil Engineering, Structural, Geotechnical, Transportation, Environmental. Practice in engineering problem solving process.

**Term Offered:** Fall

**CIVE 1100 Civil Engineering Measurements**

[3 credit hours]

Study of graphical representations of engineering structures and systems and application by hand drawing and computer aided techniques. Instruments and methods for linear and angular measurements. Error theory and propagation. Familiarization with geographical information systems.

**Corequisites:** CIVE 1110**Term Offered:** Spring, Fall**CIVE 1110 Computer Aided Drafting for Civil Engineers**

[1 credit hour]

Study of graphical representation of engineering structures and systems and application by hand-drawing and computer aided techniques.

**Corequisites:** CIVE 1100**Term Offered:** Spring, Fall**CIVE 1150 Engineering Mechanics: Statics**

[3 credit hours]

Study of coplanar statics of particles, vector addition, resultant components, equilibrium, free body diagrams, equivalent force systems, vector products, scalar products, 2 & 3 dimensional equilibrium of rigid bodies, analysis of machines, pulleys, trusses. Centroids, moments of inertia, shear and bending moment diagrams.

**Prerequisites:** (MATH 1850 with a minimum grade of D- and PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-) or (MATH 1920 with a minimum grade of D- and PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall**CIVE 1160 Engineering Mechanics: Strength Of Materials**

[3 credit hours]

Material properties. Axially loaded members, including eccentric loads and thin wall pressure vessels. Axial load applications: Stress-Strain relationships, Stress & Strain transformations. Torsion: solid sections, circular sections. Torsional load applications: Combined axial and torsion stress. Beams: shear and bending moment diagrams, bending stress, deflection. Beam load applications: Combined shear, torsion and bending stress. Buckling of long columns.

**Prerequisites:** CIVE 1150 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**CIVE 1170 Fluid Mechanics For Civil Engineers**

[0-3 credit hours]

Fundamental concepts of fluid mechanics. Use of hydrostatics, continuity, momentum and energy equations to solve fluid problems applied to pipe flow, open channel flow and boundary layer flow.

Introduction to turbo machinery.

**Prerequisites:** PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-

**Term Offered:** Spring**CIVE 2000 Professional Development**

[1 credit hour]

Basic concepts of career planning, co-op performance expectations, necessary skills for maximizing learning from experiences and realities of the professional community.

**Prerequisites:** CIVE 1000 with a minimum grade of D- or CHEE 1000 with a minimum grade of D-

**Term Offered:** Spring**CIVE 2110 Civil Engineering Materials With Laboratory**

[3 credit hours]

Introduction to properties of aggregates, Portland cement, concrete, steel, glass and bituminous mixtures. Mix designs of cement and asphalt concrete and standard test procedures for strength, workability, serviceability and durability.

**Prerequisites:** CIVE 1160 with a minimum grade of D-**Term Offered:** Spring, Fall**CIVE 2550 Sustainability Problem Solving**

[3 credit hours]

Teams of students work as part of an enterprise to address real-world engineering design projects or problems. Develops group problem-solving skills. Stresses interpersonal, project management, and action planning skills. Frames the problem from a systems and sustainability perspective including the technical, social, economic, and environmental dimensions and solutions of the problem.

**Term Offered:** Spring, Summer, Fall**CIVE 3120 Civil Engineering Systems Analysis**

[3 credit hours]

Systems Approach, optimization by differential calculus techniques, linear programming, environmental, transportation and assignment problems, management of construction projects, critical path method, PERT and decision analysis.

**Prerequisites:** MATH 2850 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Fall**CIVE 3210 Soil Mechanics**

[0-3 credit hours]

A study of soil as an engineering material. Geologic origins, physical properties, movement of water through soil, soil stresses, consolidation, shear strength. Engineering properties testing of soils in laboratory.

**Prerequisites:** (CIVE 1160 with a minimum grade of D- and CIVE 1170 with a minimum grade of D-)

**Term Offered:** Spring, Fall**CIVE 3220 Foundation Engineering**

[3 credit hours]

Application of soil mechanics principles to design for problems encountered in excavations, embankments, foundations, retaining structures, abutments, slope stability. Evaluation of the ability of soil to function in various capacities.

**Prerequisites:** CIVE 3210 with a minimum grade of D-**Term Offered:** Summer**CIVE 3310 Structural Analysis**

[3 credit hours]

Analysis of statically determinate structures; analysis of simple and compound trusses, beams and frames; introduction to indeterminate structures; slope deflection and moment distribution. Introduction to computer applications.

**Prerequisites:** (CIVE 1160 with a minimum grade of D- and MATH 1890 with a minimum grade of D- or MATH 2890 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**CIVE 3410 Steel Design I**

[3 credit hours]

An introduction to the principles underlying design of axial tension members, axial compression members, beams, columns and base plates. Also includes welded and bolted connections.

**Prerequisites:** CIVE 3310 with a minimum grade of D- and CIVE 2110 with a minimum grade of D-

**Term Offered:** Summer

**CIVE 3420 Reinforced Concrete Design I**

[3 credit hours]

Introduction to principles and underlying design of basic structural beams, columns, one-way slabs in reinforced concrete. Shear reinforcement.

**Prerequisites:** CIVE 3310 with a minimum grade of D-

**Term Offered:** Spring, Fall

**CIVE 3510 Transportation Engineering I**

[3 credit hours]

To provide an overview of transportation systems and operating characteristics of various highway modes. Concept of land use/ transportation interaction. Considerations of vehicle and human characteristics in design of highway elements. Introduction to highway capacity and traffic control devices. Transportation planning process leading to local area traffic management with introduction to transportation system management and intelligent transportation systems.

**Prerequisites:** (CIVE 1100 with a minimum grade of D- and MIME 2300 with a minimum grade of D-)

**Term Offered:** Fall

**CIVE 3520 Transportation Engineering II**

[3 credit hours]

Survey of various modes of transport with emphasis on service provided by each and facilities required. Introduction to physical and practical aspects of design of transport facilities including drainage, pavements, railroads, ports and harbors, pipelines and transportation terminals.

**Prerequisites:** (CIVE 3510 with a minimum grade of D- and CIVE 3210 with a minimum grade of D- and CIVE 2110 with a minimum grade of D-)

**Term Offered:** Summer

**CIVE 3610 Water Supply And Treatment**

[0-3 credit hours]

This course includes lecture, laboratory exercises and a team-based design project. The topics covered will include water quality, water supply, design of the physical and chemical treatment processes, water distribution systems and contemporary issues related to drinking water.

**Prerequisites:** CIVE 1170 with a minimum grade of D-

**Term Offered:** Fall

**CIVE 3620 Air Pollution Engineering I**

[3 credit hours]

Introduction to sources of air pollution, basic meteorological processes, air quality modeling, technology for air pollution control, odor control and noise pollution. Introduction to health effects of air pollutants, risk assessment and global atmospheric change. The students are required to use the USEPA programs for stack design and computations for ground level concentrations.

**Prerequisites:** CIVE 1170 with a minimum grade of D-

**Term Offered:** Spring

**CIVE 3630 Wastewater Engineering**

[3 credit hours]

This course is focused on wastewater engineering processes. The class format may include lectures, laboratory and field exercises, problem sessions, and team-based design work. The topics covered will include wastewater characterization, collection, treatment process design, discharge, as well as stormwater management and modeling.

**Prerequisites:** CIVE 1170 with a minimum grade of D-

**Term Offered:** Spring, Fall

**CIVE 3720 Boundary Surveying**

[3 credit hours]

Analysis of evidence and procedures for boundary location, Researching local survey records, and Platting and Subdivision Design. Basic legal principles for boundary surveying. Evaluation, use, and admissibility of boundary evidence in courts of law. Discussion of surveyor's liability and role in courts of law.

**Prerequisites:** CIVE 1100 with a minimum grade of D- and CIVE 1110 with a minimum grade of D-

**Term Offered:** Spring

**CIVE 3730 Geodetic and Control Surveying**

[0-3 credit hours]

Introduction to Geodesy and Control Surveying including State Plane Coordinates, Azimuths from Celestial Observations, Development of Control Networks for Surveys, Introduction of Global Positioning Systems and Aerial Mapping, high accuracy measurements which account for the curvature of the Earth, and definitions of geodetic data for survey control.

**Prerequisites:** (CIVE 1100 or CET 1210) AND (CIVE 1110 or CET 2030)

**Prerequisites:** (CIVE 1100 with a minimum grade of D- or CET 1210 with a minimum grade of D-) and (CIVE 1110 with a minimum grade of D- or CET 2030 with a minimum grade of D-)

**Term Offered:** Summer

**CIVE 3760 Route and Construction Surveying**

[0-3 credit hours]

Route Surveying and Geometric Design including Horizontal, Vertical and Spiral Curves, Topographic Surveying and Mapping, Earthwork Volumes, and Construction Layout and Staking. **Prerequisites:** (CIVE 1100 or CET 1210) AND (CIVE 1110 or CET 2030)

**Prerequisites:** (CIVE 1100 with a minimum grade of D- or CET 1210 with a minimum grade of D-) and (CIVE 1110 with a minimum grade of D- or CET 2030 with a minimum grade of D-)

**Term Offered:** Summer

**CIVE 3770 Cadastral Surveys and Ohio Land Systems**

[3 credit hours]

Study of the Official Surveys of the United States. Establishment and Retracement of Public Land Survey System Surveys and Colonial Land Surveys. History of Land Systems in the United States and Original Ohio Land Subdivisions. **Prerequisites:** (CIVE 1100 or CET 1210) AND (CIVE 1110 or CET 2030).

**Prerequisites:** (CIVE 1100 with a minimum grade of D- or CET 1210 with a minimum grade of D-) and (CIVE 1110 with a minimum grade of D- or CET 2030 with a minimum grade of D-)

**Term Offered:** Spring

**CIVE 3940 Co-Op Experience**

[1 credit hour]

Approved co-op work experience. Course may be repeated.

**Prerequisites:** CIVE 2000 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**CIVE 3950 Co-op Experience**

[1 credit hour]

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

**Prerequisites:** CIVE 3940 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**CIVE 4300 Advanced Mechanics Of Materials**

[3 credit hours]

Theory of elasticity, plane stress and plane problems, yield criteria and failure theories, bending of beams, energy methods, curved flexural members, unsymmetric bending, torsion, shear center and axisymmetrically loaded members.

**Prerequisites:** CIVE 1160 with a minimum grade of D- and (MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-)**Term Offered:** Spring, Fall**CIVE 4320 Computer-Aided Analysis of Structures**

[3 credit hours]

Matrix analysis of continuous beams, trusses and frames by force method and displacement method. Methods of consistent deformation and slope deflection will be discussed to complement the matrix analysis. Computer applications.

**Prerequisites:** CIVE 3310 with a minimum grade of D-**CIVE 4430 Structural Steel Design II**

[3 credit hours]

Study of local failure in beams, biaxial bending, plate girders, composite beams, semi-rigid composite connections and beam columns.

**Prerequisites:** CIVE 3410 with a minimum grade of D-**Term Offered:** Spring**CIVE 4440 Reinforced Concrete Design II**

[3 credit hours]

Analysis and design of columns under axial compression and biaxial bending. Consideration of bar cut-off, development lengths. Design of two-way slabs and building frames in reinforced concrete. Deflection of beams. Shear design provisions for deep beams.

**Prerequisites:** CIVE 3420 with a minimum grade of D-**CIVE 4480 Reinforced Masonry Design**

[3 credit hours]

Study of the design of reinforced and unreinforced masonry design, beams and walls and columns. Working stress design, strength design and empirical design are studied.

**Prerequisites:** CIVE 3420 with a minimum grade of D-**Term Offered:** Spring, Fall**CIVE 4610 Hydrology And Water Resources**

[3 credit hours]

This course is directed to application of fluid mechanics, hydrology, and hydraulics to the discipline of water resources engineering. Topics covered include flow in closed conduits, flow in open channels, pump systems, surface water hydrology, and computational modeling for hydraulic systems. At the successful completion of this course, the student will learn to apply the fundamental principles to the practical solution of both analysis and design problems in closed and open conduit flows.

**Prerequisites:** CIVE 1170 with a minimum grade of D- and CHEE 2110 with a minimum grade of D-**Term Offered:** Spring, Fall**CIVE 4630 Indoor Air Quality**

[3 credit hours]

Characterization of indoor air pollutants, predictions of indoor air quality levels and indoor air quality control. Four to five design problems involving indoor air quality will be discussed/solved in the class. Special emphasis on the indoor radon and asbestos problems in the United States. Use of USEPA program.

**Term Offered:** Fall**CIVE 4680 Environmental Law**

[3 credit hours]

An overview of the major federal environmental statutes: Clean Air Act, Clean Water Act, RCRA, CERCLA, etc. and legal perspective of why they were developed. Exposure to some basic legal principles which will be integrated into the overall study of environmental law. Provides a practical perspective on how the law can be applied to situations encountered by environmental engineers and scientists in the real world.

**Term Offered:** Fall**CIVE 4690 Sustainability Engineering**

[3 credit hours]

Course develops students' abilities to apply the principles of sustainability to engineered systems. Course topics include sustainability definition and data, life cycle assessment based design, planetary boundaries, greenhouse gas emissions, green construction.

**Term Offered:** Spring, Fall**CIVE 4710 Advanced Engineering Systems Modeling**

[3 credit hours]

A systematic approach to the analysis of complicated engineering system involving uncertain and probabilistic phenomena. Decision-making with multiple objectives, monte carlo simulation, reliability based design, and Markov process are studied.

**Prerequisites:** (CIVE 3120 with a minimum grade of D- and MIME 4000 with a minimum grade of D-)**Term Offered:** Fall

**CIVE 4720 Boundary Control and Legal Principles**

[3 credit hours]

Establishment and Re-establishment of Land Boundaries, Locating Points and Line for Boundaries, Historical Development of Boundaries, Introduction of Rectangular System of Public Land Surveys, Systems to Describe Properties, Application of Legal Principles to Boundary Analysis. Prerequisites: (CIVE 1100 or CET 1210) AND (CIVE 1110 or CET 2030).

**Prerequisites:** (CIVE 1100 with a minimum grade of D- or CET 1210 with a minimum grade of D-) and (CIVE 1110 with a minimum grade of D- or CET 2030 with a minimum grade of D-)

**Term Offered:** Fall**CIVE 4750 Senior Design Projects**

[0-3 credit hours]

To provide real world civil engineering design experience through a design problem as would be developed in an actual civil engineering consultant's office.

**Term Offered:** Spring, Fall**CIVE 4770 Legal and Ethical Aspects of Surveying**

[3 credit hours]

Study of Statute and Common Law pertaining to Surveying and Property Rights, Interpretations and Methods to Describe Real Property, Minimum Standards for Surveys, Ethics for Professional Surveyors. Prerequisites: (CIVE 1100 or CET 1210) AND (CIVE 1110 or CET 2030)

**Prerequisites:** (CIVE 1100 with a minimum grade of D- or CET 1210 with a minimum grade of D-) and (CIVE 1110 with a minimum grade of D- or CET 2030 with a minimum grade of D-)

**Term Offered:** Fall**CIVE 4900 Seminars In Civil Engineering**

[1-3 credit hours]

An opportunity for qualified upperclassmen to pursue a relevant area of Civil Engineering of particular personal interest under the supervision of a faculty member.

**Term Offered:** Spring, Summer, Fall**CIVE 4980 Special Topics**

[1-3 credit hours]

A special topic at the undergraduate level in Civil or Environmental Engineering to be offered as a course during a term by a faculty member. This is intended for students nearing graduation. Credits will correspond to regular class meeting of one lecture hour per week per credit hour.

**Term Offered:** Spring, Summer, Fall**CIVE 4990 Independent Study**

[1-3 credit hours]

An opportunity for a qualified upper class person to pursue a relevant area of Civil Engineering under the supervision of a faculty member.

**Term Offered:** Spring, Summer, Fall

## BS in Civil Engineering

Code	Title	Hours
CHEM 1230	General Chemistry I	4
CIVE 1000	Freshman Civil Engineering Experience	1
CIVE 1100	Civil Engineering Measurements	3
CIVE 1110	Computer Aided Drafting for Civil Engineers	1
CIVE 1150	Engineering Mechanics: Statics	3
CIVE 1160	Engineering Mechanics: Strength Of Materials	3

CIVE 1170	Fluid Mechanics For Civil Engineers	3
or CHEE 2110	Process Fluid Mechanics	
CIVE 2000	Professional Development	1
CIVE 2110	Civil Engineering Materials With Laboratory	3
CIVE 3120	Civil Engineering Systems Analysis	3
CIVE 3210	Soil Mechanics	3
CIVE 3220	Foundation Engineering	3
CIVE 3310	Structural Analysis	3
CIVE 3410	Steel Design I	3
CIVE 3420	Reinforced Concrete Design I	3
CIVE 3510	Transportation Engineering I	3
CIVE 3520	Transportation Engineering II	3
CIVE 3610	Water Supply And Treatment	3
CIVE 3630	Wastewater Engineering	3
CIVE 4750	Senior Design Projects	3
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
or ENGL 2960	Professional and Business Writing	
ENGT 3600	Engineering Economics	3
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
MATH 1890	Elementary Linear Algebra	3
MATH 2850	Elementary Multivariable Calculus	4
MATH 2860	Elementary Differential Equations	3
MIME 2300	Engineering Dynamics	3
MIME 4000	Engineering Statistics I	3
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1

**Co-Op Experiences**

CIVE 3940	Co-Op Experience (Three semesters total. One credit hour earned per semester.)	3
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**Technical Electives**

Fundamentals of Engineering Technical Elective (choose one of the three)		3
MIME 1650	Materials Science & Engineering	
EECS 2340	Electric Circuits For Nonmajors	
MIME 3400	Thermodynamics I	
CIVE Subject Technical Electives		6

Choose two courses (minimum of 6 hours) in 3000-4899 level courses in CIVE that are not already used in the curriculum requirements above.

Other Technical Elective - Choose one course (minimum of 3 credit hours) of Engineering Science Technical Electives, Engineering Technology Technical Electives, or any other courses listed below:	3
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Engineering Science Technical Electives include 3000-4899 level courses in BIOE/CHEE/CIVE/EECS/MIME (excluding 3940 and 3950)



Engineering Technology Technical Electives include 3000-4899 level courses in CET/CSET/CYBR/EET/ENGT/IT/MET	
EEES 3250	Engineering Geology
EEES 4410	Hydrogeology
GEPL 4110	Geographic Information Systems
GEPL 4180	Geographic Information Systems Applications
GEPL 4530	Principles Of Urban Planning
GEPL 4540	Weather And Climate
GEPL 4750	Transportation Geography
University Core Curriculum <sup>1</sup>	18
Arts/Humanities Core	
Social Science Core	
Non-US Diversity	
US Diversity	
Natural Science Core (must be in ASTR/BIOL/EEES)	
<b>Total Hours</b>	<b>131</b>

<sup>1</sup> Minimum requirements are: 6 hours of Arts/Humanities, 6 hours of Social Science, 3 hours of Non-US Diversity, 3 hours of US Diversity, and 3 hours of Natural Science. The Natural Science course must be in ASTR/BIOL/EEES found in the Core Curriculum section of the University Catalog. However, one of the Core Curriculum courses may be used to fulfill two requirements, also known as a "double dip", which reduces this area from 21 hours down to 18 hours. Please see Academic Advisor for more details.

Below is a sample plan of study. Consult your degree audit for your program requirements.

	Hours	
<b>First Term</b>		
CHEM 1230	General Chemistry I	4
CIVE 1000	Freshman Civil Engineering Experience	1
CIVE 1100	Civil Engineering Measurements	3
CIVE 1110	Computer Aided Drafting for Civil Engineers	1
ENGL 1110	College Composition I	3
MATH 1850	Single Variable Calculus I	4
<b>Hours</b>	<b>16</b>	
<b>Second Term</b>		
CIVE 2000	Professional Development	1
ENGL 2950	Technical Writing	3
	or ENGL 2960 or Professional and Business Writing	
MATH 1860	Single Variable Calculus II	4
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
Arts/Humanities/Social Science Core		3
<b>Hours</b>	<b>16</b>	
<b>Third Term</b>		
CIVE 1150	Engineering Mechanics: Statics	3
ENGT 3600	Engineering Economics	3

MATH 1890	Elementary Linear Algebra	3
MATH 2850	Elementary Multivariable Calculus	4
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1

**Hours 18**

**Fourth Term**

CIVE 3940	First Co-op Experience	1
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**Hours 1**

**Fifth Term**

CIVE 1160	Engineering Mechanics: Strength Of Materials	3
MATH 2860	Elementary Differential Equations	3
MIME 2300	Engineering Dynamics	3
Natural Science Core (must be in ASTR/BIOL/EEES)		3
Arts/Humanities/Social Science Core		3

**Hours 15**

**Sixth Term**

CIVE 3940	Second Co-op Experience	1
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**Hours 1**

**Seventh Term**

CIVE 1170	Fluid Mechanics For Civil Engineers	3
CIVE 2110	Civil Engineering Materials With Laboratory	3
CIVE 3120	Civil Engineering Systems Analysis	3
CIVE 3310	Structural Analysis	3
Fundamentals of Engineering Technical Elective		3

**Hours 15**

**Eighth Term**

CIVE 3940	Third Co-op Experience	1
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**Hours 1**

**Ninth Term**

CIVE 3210	Soil Mechanics	3
CIVE 3420	Reinforced Concrete Design I	3
CIVE 3510	Transportation Engineering I	3
CIVE 3610	Water Supply And Treatment	3
CIVE Technical Elective		3
Arts/Humanities/Social Science Core		3

**Hours 18**

**Tenth Term**

CIVE 3220	Foundation Engineering	3
CIVE 3410	Steel Design I	3
CIVE 3520	Transportation Engineering II	3
MIME 4000	Engineering Statistics I	3
Arts/Humanities/Social Science Core		3

**Hours 15**

**Eleventh Term**

CIVE 3630	Wastewater Engineering	3
CIVE 4750	Senior Design Projects	3
CIVE Technical Elective		3



Technical Elective	3
Arts/Humanities Core/Non-US Diversity	3
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>131</b>

- PLO 1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- PLO 2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- PLO 3. An ability to communicate effectively with a range of audiences.
- PLO 4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- PLO 5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- PLO 6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- PLO 7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## BS in Environmental Engineering

Code	Title	Hours
CHEE 1000	Orientation And Computing For Chemical and Environmental Engineers	3
CHEE 2010	Mass And Energy Balances	3
CHEE 2230	Chemical Engineering Thermodynamics I	3
CHEM 1230	General Chemistry I	4
CHEM 1240	General Chemistry II	4
CHEM 1280	General Chemistry Lab I	1
CHEM 1290	General Chemistry Lab II	1
CIVE 1110	Computer Aided Drafting for Civil Engineers	1
CIVE 1150	Engineering Mechanics: Statics	3
CIVE 1160	Engineering Mechanics: Strength Of Materials	3
CIVE 1170	Fluid Mechanics For Civil Engineers	3
or CHEE 2110	Process Fluid Mechanics	
CIVE 2000	Professional Development	1
CIVE 2550	Sustainability Problem Solving	3
CIVE 3120	Civil Engineering Systems Analysis	3
CIVE 3210	Soil Mechanics	3
CIVE 3610	Water Supply And Treatment	3
CIVE 3620	Air Pollution Engineering I	3
CIVE 3630	Wastewater Engineering	3
CIVE 4610	Hydrology And Water Resources	3
CIVE 4670	Solid Waste Management	3
CIVE 4680	Environmental Law	3

CIVE 4750	Senior Design Projects	3
ECON 3240	Environmental Economics	3
EEES 2020	Introduction to the Environment: Energy and Climate	3
or EEES 2030	Introduction to the Environment Land-Use and Water	
EEES 3050	General Ecology	3
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
or ENGL 2960	Professional and Business Writing	
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
MATH 2850	Elementary Multivariable Calculus	4
MATH 2860	Elementary Differential Equations	3
MIME 4000	Engineering Statistics I	3
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1

### Co-Op Experiences

CIVE 3940	Co-Op Experience (Three semesters total. One credit hour earned per semester.)	3
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### Technical Electives

Engineering Science Technical Electives	9
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Choose three courses (minimum of 9 hours) in 3000-4899 level courses in BIOE/CHEE/CIVE/EECS/MIME (excluding 3940 and 3950)

EEES Technical Elective - Choose one course (minimum of 3 credit hours) from the following courses:	3
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EEES 3100 Surficial Processes

EEES 3210 Mineralogy and Petrology

EEES 3220 Sedimentary Petrology and Stratigraphy

EEES 3250 Engineering Geology

EEES 3310 Earth Structures and Mapping

EEES 4100 Glacial and Quaternary Geology

EEES 4200 Quaternary Geology

EEES 4240 Soil Science

EEES 4610 Solid Earth Geophysics

EEES 4630

Other Technical Elective - Choose one additional course (minimum of 3 credit hours) of Engineering Science Technical Electives (as outlined above), EEES Technical Electives (as outlined above), or any of the courses listed below:	3
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CHEM 3810 Chemistry of Sustainable Energy Resources

CHEM 4200 Green Chemistry

CHEM 4210 Environmental Chemistry

GEPL 3900 Environmental Planning

GEPL 4110 Geographic Information Systems

GEPL 4180 Geographic Information Systems Applications

GEPL 4540 Weather And Climate

PHYS 3400 Physical Principles Of Energy Sources For Humans

PHYS 4400 Principles and Varieties of Solar Energy

University Core Curriculum <sup>1</sup>	15
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Arts/Humanities Core

Social Science Core	
Non-US Diversity	
US Diversity	
<b>Total Hours</b>	<b>131</b>

<sup>1</sup> Minimum requirements are: 6 hours of Arts/Humanities, 6 hours of Social Science, 3 hours of Non-US Diversity, and 3 hours of US Diversity. However, one of the Core Curriculum courses may be used to fulfill two requirements, also known as a "double dip", which reduces this area from 18 hours down to 15 hours. Please see Academic Advisor for more details.

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
CHEE 1000	Orientation And Computing For Chemical and Environmental Engineers	3
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
EEES 2020 or EEES 2030	Introduction to the Environment: Energy and Climate or Introduction to the Environment Land-Use and Water	3
MATH 1850	Single Variable Calculus I	4
<b>Hours</b>		<b>15</b>
Second Term		
CHEE 2010	Mass And Energy Balances	3
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
CIVE 1110	Computer Aided Drafting for Civil Engineers	1
CIVE 2000	Professional Development	1
MATH 1860	Single Variable Calculus II	4
<b>Hours</b>		<b>14</b>
Third Term		
CHEE 2230	Chemical Engineering Thermodynamics I	3
CIVE 2550	Sustainability Problem Solving	3
ENGL 1110	College Composition I	3
MATH 2850	Elementary Multivariable Calculus	4
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
<b>Hours</b>		<b>18</b>
Fourth Term		
CIVE 3940	First Co-op Experience	1
<b>Hours</b>		<b>1</b>
Fifth Term		
CIVE 1150	Engineering Mechanics: Statics	3
ECON 3240	Environmental Economics	3

ENGL 2950 or ENGL 2960	Technical Writing or Professional and Business Writing	3
MATH 2860	Elementary Differential Equations	3
Arts/Humanities/Social Science Core		3
<b>Hours</b>		<b>15</b>

Sixth Term		
CIVE 3940	Second Co-op Experience	1
<b>Hours</b>		<b>1</b>

Seventh Term		
CIVE 1160	Engineering Mechanics: Strength Of Materials	3
CIVE 1170	Fluid Mechanics For Civil Engineers	3
CIVE 3120	Civil Engineering Systems Analysis	3
EEES 3050	General Ecology	3
Arts/Humanities/Social Science Core		3
Arts/Humanities/Social Science Core		3
<b>Hours</b>		<b>18</b>

Eighth Term		
CIVE 3940	Third Co-op Experience	1
<b>Hours</b>		<b>1</b>

Ninth Term		
CIVE 3210	Soil Mechanics	3
CIVE 3610	Water Supply And Treatment	3
CIVE 3620	Air Pollution Engineering I	3
CIVE 4610	Hydrology And Water Resources	3
CIVE 4670	Solid Waste Management	3
Technical Electives		3
<b>Hours</b>		<b>18</b>

Tenth Term		
CIVE 4680	Environmental Law	3
MIME 4000	Engineering Statistics I	3
Technical Elective		3
Arts/Humanities/Social Science Core		3
Arts/Humanities/Social Science Core		3
<b>Hours</b>		<b>15</b>

Eleventh Term		
CIVE 3630	Wastewater Engineering	3
CIVE 4750	Senior Design Projects	3
Technical Elective		3
Technical Elective		3
EEES Technical Elective		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>131</b>

- PLO 1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- PLO 2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety,

and welfare, as well as global, cultural, social, environmental, and economic factors.

- PLO 3. an ability to communicate effectively with a range of audiences.
- PLO 4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- PLO 5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- PLO 6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- PLO 7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## Minor in Environmental Engineering

Code	Title	Hours
CIVE 1170	Fluid Mechanics For Civil Engineers	3
CIVE 3610	Water Supply And Treatment	3
CIVE 3630	Wastewater Engineering	3
Choose two of the	of the following (two electives)	6
CIVE 4670	Solid Waste Management	
CIVE 3620	Air Pollution Engineering I	
CIVE 3210	Soil Mechanics	
CIVE 4610	Hydrology And Water Resources	
CIVE 4680	Environmental Law	
CIVE 4980	Special Topics (Microbiome and multi-omics)	
CHEE 2010	Mass And Energy Balances	
CHEE 2230	Chemical Engineering Thermodynamics I	
ECON 3240	Environmental Economics	
<b>Total Hours</b>		<b>15</b>

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- An ability to communicate effectively with a range of audiences.
- An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## Minor in Surveying

The College of Engineering offers several minors for students at The University of Toledo. These minors are recommended for students who want to enhance their academic programs with engineering-related course work and are intended to allow students to develop expertise in a discipline outside their majors. Students taking courses in these minors must meet course prerequisite requirements. Students should contact advisors in the College of Engineering for additional details about the course requirements of minors and contact advisors in their home college to determine how the minors will fit into their degree curriculum.

Note that per University of Toledo policy, minors cannot be declared by students in the same major as a given minor since at least 12 hours of the minor must be distinct from any credit hours used to fulfill any major the student is pursuing.

Code	Title	Hours
CIVE 3720	Boundary Surveying	3
CIVE 3730	Geodetic and Control Surveying	0-3
CIVE 3760	Route and Construction Surveying	0-3
CIVE 3770	Cadastral Surveys and Ohio Land Systems	3
CIVE 4720	Boundary Control and Legal Principles	3
CIVE 4770	Legal and Ethical Aspects of Surveying	3
<b>Total Hours</b>		<b>12-18</b>

## Department of Electrical Engineering and Computer Science

**Liang Cheng, Professor, Chair**  
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The mission of the EECS Department is to educate future engineers and scientists in the fields of electrical engineering and computer science; to contribute to the body of knowledge in the fields of electrical engineering and computer science; and to conduct research and contribute to the development of innovative solutions to address diverse technological and societal needs.

## Degrees Offered

- BS in Computer Science (p. 250)
- BS in Computer Science and Engineering (p. 251)

- BS in Electrical Engineering (p. 253)
- Minor in Computer Science (p. 255)

**EECS 1000 Introduction to Electrical Engineering**

[3 credit hours]

Orientation to the University, college and departmental facilities, procedures and methodologies available to the student for their academic journey. Introduction to fundamental topics in electrical engineering, engineering design and problem solving.

**Term Offered:** Fall**EECS 1030 Introduction to Computer Science and Engineering**

[3 credit hours]

Orientation to the University, college and departmental facilities, procedures and methodologies available to the student for their academic journey. Introduction to Computer Science and Engineering, with an emphasis on the fundamentals of computer programming and problem solving.

**Term Offered:** Spring, Summer, Fall**EECS 1100 Digital Logic Design**

[4 credit hours]

Number representation and Boolean Algebra. Combinational circuit analysis and design. K-map and tabulation methods. Multiplexers, decoders, adders/subtractors and PLD devices. Sequential circuit analysis and design. Registers, counters and recognizers.

**Term Offered:** Spring, Fall**EECS 1500 Introduction to Programming**

[0-3 credit hours]

Covers the concept and properties of an algorithm, analysis and decomposition of computational problems, use of modern programming practices. Introduction to arrays and classes. Uses the C++ language.

**Term Offered:** Spring, Fall**EECS 1510 Introduction To Object Oriented Programming**

[4 credit hours]

Introduces the basics of programming using the Java language. Covers number types, objects, methods, control structures, vectors, files, and inheritance. Utilizes the Java platform to develop GUI interfaces.

**Prerequisites:** EECS 1030 with a minimum grade of C-**Term Offered:** Spring, Fall**EECS 2000 EECS Professional Development**

[1 credit hour]

Preparation for entry to the professions of Electrical Engineering and Computer Science and Engineering, including ethics and social responsibilities, employment practices, continuing education and professional registration.

**Term Offered:** Spring, Fall**EECS 2110 Computer Architecture and Organization**

[3 credit hours]

Fundamentals of computer architecture, computer arithmetic, memory systems, interfacing and communication, device subsystems, processor design, cpu organization, assembly programming, performance, distributed models and multiprocessing.

**Prerequisites:** EECS 1100 with a minimum grade of D- and (EECS 1500 with a minimum grade of D- or EECS 1510 with a minimum grade of D-)**Term Offered:** Spring, Summer**EECS 2300 Electric Circuits**

[0-4 credit hours]

An introduction to electrical circuit components and laws, including ideal op-amps, DC circuit analysis, AC circuit analysis, transient analysis of RL and RC circuits and computer-aided circuit analysis.

**Prerequisites:** PHYS 2140 (may be taken concurrently) with a minimum grade of D- and PHYS 2145 (may be taken concurrently) with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**EECS 2340 Electric Circuits For Nonmajors**

[3 credit hours]

For students not majoring in EECS. An introduction to electrical circuit components and laws, resistive circuit analysis, AC circuit analysis, phasers, three-phase circuits and computer-aided circuit analysis.

**Prerequisites:** PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**EECS 2500 Linear Data Structures**

[4 credit hours]

This course looks at stacks, queues, and lists as well as the order of algorithms used to access and modify these structures. In addition recursion, hashing, sorting, and set representation are examined in depth.

**Prerequisites:** EECS 1510 with a minimum grade of C-**Term Offered:** Spring, Fall**EECS 2510 Non-Linear Data Structures**

[4 credit hours]

The data structures introduced in EECS 2500 are extended to include trees (binary, balanced, and n-ary), graphs, and advanced sorting techniques. In addition, the C++ language is used as the main vehicle and is introduced in the course. Students are expected to have a strong background in Java prior to this course.

**Prerequisites:** EECS 2500 with a minimum grade of C- and EECS 2520 (may be taken concurrently) with a minimum grade of C-**Term Offered:** Spring, Summer, Fall**EECS 2520 Discrete Structures**

[3 credit hours]

An introduction to the discrete structures used in computer science to develop software including proof techniques, Boolean logic, graphs, trees, recurrence relations, functions, combinatorics, and number theory.

**Prerequisites:** PHIL 1010 with a minimum grade of D- and EECS 1510 with a minimum grade of C-**Term Offered:** Spring, Summer**EECS 3100 Embedded Systems**

[4 credit hours]

Microcontroller interfacing, assembly and C language programming for embedded systems, timer, input/output synchronization; analog to digital conversion, digital to analog conversion, interrupts, and embedded system debugging techniques.

**Prerequisites:** EECS 2110 with a minimum grade of D- and EECS 3210 with a minimum grade of D- and EECS 3400 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

**EECS 3150 Data Communications**

[3 credit hours]

Analog and digital data transmission, transmission media, Modulation techniques. Data encoding, asynchronous and synchronous transmissions, USART, RS232-C, RS-449 standards. Data link configuration and control, error control, multiplexing and demultiplexing.

**Prerequisites:** EECS 3210 with a minimum grade of D- or (EECS 2110 with a minimum grade of D- and MATH 2600 with a minimum grade of D-)

**Term Offered:** Summer, Fall

**EECS 3210 Signals and Systems**

[3 credit hours]

Signal and system representation. Convolution and impulse response. Fourier series, Fourier transform and Laplace transform. Discrete-time systems and Z-transforms. Computer simulation using MATLAB.

**Prerequisites:** EECS 2300 with a minimum grade of D- and (EECS 1500 with a minimum grade of D- or EECS 1510 with a minimum grade of D-) and (MATH 1890 with a minimum grade of D- or MATH 2890 with a minimum grade of D-) and (MATH 3860 with a minimum grade of D- or MATH 2860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**EECS 3220 Electric Circuits II**

[3 credit hours]

Advanced topics including three-phase systems, magnetically-coupled systems, resonance and second-order systems, Laplace transform circuit analysis, Fourier series for periodic waveforms and applications to electric circuits, ideal filters, system modeling and two-port networks.

**Prerequisites:** EECS 2300 with a minimum grade of D-

**Corequisites:** EECS 3210

**Term Offered:** Spring, Fall

**EECS 3300 Probabilistic Methods In Engineering**

[3 credit hours]

Techniques for modeling and analysis of random phenomena in EECS, including communication, control and computer systems. Distribution, density and characteristic functions. Computer generation. Functions of random variables.

**Prerequisites:** EECS 3210 with a minimum grade of D-

**Term Offered:** Spring

**EECS 3400 Electronics I**

[0-4 credit hours]

Large-signal and incremental characteristics of the pn diode, BJT, MOSFET and JFET. Large-signal analysis and computer simulation of devices and digital circuits. Logic gate implementation. Laboratory experiments and projects.

**Prerequisites:** EECS 2300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 3420 Electronics II**

[3 credit hours]

Analog transistor, diode and integrated circuit analysis and design. Incremental analysis techniques, frequency response and feedback techniques.

**Prerequisites:** (EECS 3210 with a minimum grade of D- and EECS 3400 with a minimum grade of D-)

**Term Offered:** Summer, Fall

**EECS 3440 Electronics Laboratory**

[1 credit hour]

Laboratory experiments and projects in the testing and design of analog and mixed-signal electronic circuits.

**Prerequisites:** EECS 3420 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 3460 Electrical Energy Conversion**

[3 credit hours]

Traditional and renewable electrical energy sources, principles of electromechanical energy conversion, magnetic circuits and transformers, steady state performance of synchronous machines, dc machines, single phase and three phase induction motors.

**Prerequisites:** EECS 3710 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Summer, Fall

**EECS 3480 Energy Conversion Laboratory**

[1 credit hour]

Laboratory studies of power transformers, synchronous machines, DC machines, single and three phase induction motors.

**Prerequisites:** EECS 3460 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 3540 Operating Systems And Systems Programming**

[3 credit hours]

Examines the external and internal characteristics of computer operating systems and related software. Details of at least one operating system and comparison with other operating systems. An introduction to systems level programming.

**Prerequisites:** EECS 2110 with a minimum grade of D- and EECS 2510 with a minimum grade of D-

**Term Offered:** Spring

**EECS 3550 Software Engineering**

[3 credit hours]

An introduction to the Software Engineering process. Includes: the software lifecycle, user requirements, human-computer interaction, functional specification, software design, software tools, testing and modification. A major term project is assigned.

**Prerequisites:** EECS 2510 with a minimum grade of D- and (ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1130 with a minimum grade of D-)

**Term Offered:** Spring

**EECS 3560 Programming Languages and Paradigms**

[3 credit hours]

Primary constructs of contemporary programming languages, four major programming paradigms (imperative, functional, logical, and object-oriented), representative programming languages of these paradigms and their usages.

**Prerequisites:** EECS 2510 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**EECS 3710 Electromagnetics I**

[3 credit hours]

The nature of electromagnetism, Complex numbers, Transmission lines, Smith chart, Impedance matching, Vector analysis, Coordinate transformations, Electrostatics, Electrical properties of materials, Boundary conditions, Magnetostatics, Magnetic properties of materials, Boundary conditions.

**Prerequisites:** EECS 2300 with a minimum grade of D- and PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-

**Term Offered:** Spring, Fall**EECS 3720 Electromagnetics II**

[3 credit hours]

Maxwell's equations, Boundary conditions for electromagnetics, Plane-wave propagation in lossless and lossy media, Reflection, Transmission, Waveguides, Cavity resonators, Radiation, Antenna radiation characteristics, Antennas, Satellite communication systems, Introduction to CAD tools.

**Prerequisites:** EECS 3710 with a minimum grade of D-

**Term Offered:** Spring**EECS 3940 Co-Op Experience**

[1 credit hour]

Approved co-op work experience. Course may be repeated.

**Prerequisites:** EECS 2000 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**EECS 3950 Co-Op Experience**

[1 credit hour]

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

**Prerequisites:** EECS 3940 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**EECS 4010 Senior Design Project I**

[1 credit hour]

Student teams select and research a design project and propose a design. Topics covered include entrepreneurship, business plan, technical communications, design process, design teams, standards, ethics, safety and environment, and intellectual property. A fully developed senior design project proposal is required.

**Prerequisites:** EECS 3100 with a minimum grade of D- or EECS 3420 with a minimum grade of D-

**Term Offered:** Spring, Fall**EECS 4020 Senior Design Project II**

[3 credit hours]

Student teams implement, test and evaluate a design previously proposed in EECS 4010. Written reports on progress and final project are required. Preliminary design and critical design reviews may be performed. Oral presentation and senior design exposition participation are needed.

**Prerequisites:** EECS 4010 with a minimum grade of D-

**Term Offered:** Spring, Fall**EECS 4050 VLSI and FPGA System Design & Applications**

[3 credit hours]

This course will cover the basic fundamentals of Very Large Scale Integrated (VLSI) systems and Field Programmable Gate Arrays (FPGAs). Topics include: VHDL, CAD Tools, CMOS VLSI Design including design of Adders and Multipliers, FPGA Architecture, Interconnect Delay, Memory Structures, Timing and Clocking, Design for Performance, Custom IC Design including ASICs, Floor Planning, Placement and Routing, and Testing of VLSI circuits and FPGAs

**Prerequisites:** EECS 2110 with a minimum grade of C-

**Term Offered:** Fall**EECS 4100 Theory of Computation**

[3 credit hours]

Examines formal models of automata and languages. Finite-state automata, regular languages, pushdown automata, context-free languages, Turing machines, decidability, reducibility, and P vs NP complexity classes.

**Prerequisites:** EECS 2510 with a minimum grade of D- and EECS 2520 with a minimum grade of D-

**Term Offered:** Spring**EECS 4120 Introduction to Fuzzy Systems and Applications**

[3 credit hours]

[3 hours] Introduction to Fuzzy Rule Based Intelligent Systems. Basic Concepts of Fuzzy logic, Fuzzy Sets, Fuzzy Arithmetic, Fuzzy Relations, Fuzzy Graphs, Approximate Reasoning and Fuzzy Implications. Applications in Real World Domains. Prerequisite: EECS 2110.

**Prerequisites:** EECS 2110 with a minimum grade of D-

**EECS 4180 Computer Networks**

[3 credit hours]

ISO/OSI layer models of computer networks. Review of the first two layers. Discussion of network, transport, session, presentation and application layers. Study of LANs and standards. Internetworking, routers and bridges.

**Prerequisites:** EECS 3150 with a minimum grade of D- or EECS 2110 with a minimum grade of D-

**Term Offered:** Spring, Fall**EECS 4200 Feedback Control Systems**

[3 credit hours]

Feedback methods for the control of dynamic systems. Topics include characteristics and performance of feedback systems, state variable analysis, stability, root locus and frequency response methods and computer simulation.

**Prerequisites:** EECS 3220 with a minimum grade of D-

**Term Offered:** Spring**EECS 4220 Programmable Logic Controllers**

[3 credit hours]

An introduction to programmable logic controllers (PLCs), process control algorithms, interfacing of sensors and other I/O devices, simulation and networking.

**Prerequisites:** (EECS 1100 with a minimum grade of D- and EECS 3210 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**EECS 4240 Power Systems Operation**

[3 credit hours]

Single line diagrams and per unit calculations, network matrices and Y-bus, load flow techniques, large system loss formula, real and reactive power dispatch, power system relays and protection.

**Prerequisites:** EECS 3460 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 4260 Control Systems Design**

[3 credit hours]

A general study of computer-aided design of control systems. Topics include: stability, compensation, pole placement, nonlinear systems and digital systems.

**Prerequisites:** EECS 4200 with a minimum grade of D-

**Term Offered:** Fall

**EECS 4330 Image Analysis And Computer Vision**

[3 credit hours]

Imaging geometry, image filtering, segmentation techniques, image representation and description, stereo vision and depth measurements, texture analysis, dynamic vision and motion analysis, matching and recognition.

**Prerequisites:** EECS 3300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 4360 Communication Systems**

[3 credit hours]

Fourier transform applications in signal analysis and communication. Signals spectra, filtering, AM and FM modulation, noise and optimum receiver, sampling theorem, multiplexing, PCM, introduction to digital modulators and demodulators.

**Prerequisites:** EECS 3300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 4370 Information Theory And Coding**

[3 credit hours]

Coding concepts, Huffman code, entropy analysis, channel and mutual information, channel capacity and Shannon's theorem, algebraic coding theory and application to blockcode and cyclic code, introduction to convolutional code.

**Prerequisites:** EECS 3300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 4380 Digital Signal Processing**

[3 credit hours]

Discrete Fourier Transform (DFT), discrete convolution and correlation, Fast Fourier Transform (FFT) and its applications, design of IIR and FIR digital filters, multirate/channel digital systems, decimation and interpolation.

**Prerequisites:** EECS 3210 with a minimum grade of D-

**Term Offered:** Spring

**EECS 4390 Wireless And Mobile Networks**

[3 credit hours]

Mobile radio propagation; the cellular concept; multiple radio access; multiple division techniques; channel allocation; mobile communication systems; existing wireless systems; network protocols; AD HOC and sensor networks; wireless LANS and PANS; recent advances.

**Prerequisites:** (EECS 3210 with a minimum grade of D- and EECS 3300 with a minimum grade of D-) or (EECS 3210 with a minimum grade of D- and MIME 4000 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**EECS 4410 Electro-Optics**

[3 credit hours]

Introduction to laser physics, optics, optical waveguides, optical communication systems and electro-optics. Design of light processing and communication systems will be considered with emphasis on optics and optical communication.

**Prerequisites:** EECS 3710 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 4460 Power Systems Management**

[3 credit hours]

An advanced study of the management and operation of today's power system. Included are historical developments, utility and operational costs and economics, power generation alternatives, fuel alternatives, renewable applications, transmission and distribution practices, and a discussion of current power system issues, both in the U.S. and abroad.

**Prerequisites:** EECS 3220 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**EECS 4480 Power Electronics**

[3 credit hours]

Electronic power switching circuits. Half-wave and full-wave rectification. Characteristics of wide bandgap semiconductors. Analysis and design of inverters (dc-ac converters). Isolated and non-isolated dc-dc converters.

**Prerequisites:** EECS 3420 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 4500 Programming for the World Wide Web**

[3 credit hours]

Fundamental concepts and programming languages for constructing contemporary websites. Differences and similarities between procedural, object-oriented, and scripting languages. Topics include HTML, Javascript, CSS, XML, Ajax, PHP, ASP.net, Three.js, and related technologies, as well as their impact on the programming process.

**Prerequisites:** EECS 2510 with a minimum grade of D- and EECS 4100 with a minimum grade of D-

**Term Offered:** Spring

**EECS 4520 Advanced Systems Programming**

[4 credit hours]

This course examines pertinent concepts of systems programming. Topics covered include: synchronization, distributed programming models, kernel design, peripheral handling, file systems and security history and methods.

**Term Offered:** Spring, Fall

**EECS 4530 Computer Graphics I**

[4 credit hours]

An introduction to typical computer graphics systems and their operation. Interactive techniques will be introduced as well as representations and projections of three-dimensional images. Exercises using graphics equipment are assigned.

**Term Offered:** Spring, Fall



**EECS 4560 Database Management Systems**

[3 credit hours]

Introduction to Database Systems, Data Modeling, Entity-Relationship Diagrams, The Relational Model, SQL, Relational Algebra, Relational Calculus, Normal Forms (1NF, 2NF, 3NF, BCNF, 4NF, PJNF/5NF), Candidate keys, superkeys, schema decomposition, Functional dependency, Entity and Referential Integrity.

**Prerequisites:** EECS 2510 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4580 Human Computer Interface Design**

[3 credit hours]

[3 hours] The design of human-computer interfaces and their importance to human-computer interaction. Human engineering, implementation techniques, prototyping, and current and future research areas.

**Prerequisite:** EECS 3550**Prerequisites:** EECS 3350 with a minimum grade of D-**Term Offered:** Spring**EECS 4590 Algorithms**

[3 credit hours]

Techniques for devising efficient computer algorithms. Topics include: divide-and-conquer techniques, dynamic programming, linear programming, graph algorithms, greedy algorithms, NP and P complexity classes, and approximation algorithms for NP complete problems.

**Prerequisites:** EECS 2510 with a minimum grade of D and EECS 4100 with a minimum grade of D-**EECS 4600 Solid State Devices**

[0-4 credit hours]

Theory and operation of physical electronic devices. Electrical transport in metals, semiconductors and models of BJT's and FET's. Optoelectronic devices and integrated circuits. Laboratory includes hands-on experimentation with basic semiconductor fabrication processes.

**Prerequisites:** EECS 3400 with a minimum grade of D-**Term Offered:** Fall**EECS 4610 Digital Vlsi Design I: Basic Subsystems**

[4 credit hours]

CMOS process technologies, CMOS logic families, custom and semi-custom design. Subsystem design of adders, counters and multipliers. System design methods and VLSI design tools.

**Prerequisites:** EECS 3400 with a minimum grade of D-**EECS 4640 Inside Cryptography**

[3 credit hours]

Examines the inner workings of several cryptographic algorithms, including the discrete math behind them. Introduces operations in a Galois Field, and covers some Prime Number Theory. Symmetric algorithms include Feistel (DES) and non-Feistel (AES) designs; Asymmetric algorithms include Merkle-Hellman and RSA. Block and stream modes are explored, as are cryptographic hash functions, and ECB and Chained modes of encryption.

**Prerequisites:** EECS 2520 with a minimum grade of D- and EECS 3100 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4720 Fundamentals of Cyber Security**

[3 credit hours]

This course introduces cybersecurity concepts and their relevance to national security, businesses, society, and individuals. Concepts that will be discussed include terminologies, blockchain, cryptocurrency, maths/statistics in the domain, review of various cybersecurity domains, forensics, and methods/practices to secure systems. Additional real-world security problems will be introduced through hands-on experiments.

**Prerequisites:** EECS 2110 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4740 Artificial Intelligence**

[3 credit hours]

This course explores the topic of intelligent software agents with a emphasis on hands-on design of adaptive problem-solving agents for environments of increasing complexity ranging from single-agent computer games to complex real-world multi-agent environments.

**Prerequisites:** EECS 2510 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4750 Machine Learning**

[3 credit hours]

This course emphasizes learning algorithms and theory including concept, decision tree, neural network, computational, Bayesian, evolutionary, and reinforcement learning.

**Prerequisites:** (MIME 4000 with a minimum grade of D- and MATH 2890 with a minimum grade of D- and EECS 2110 with a minimum grade of D-)**Term Offered:** Spring, Fall**EECS 4760 Computer Security**

[3 credit hours]

Foundational concepts in Computer Security: The CIA Triad, Authentication, Access Control, Least Privilege, Complete Mediation, Economy of Mechanism, Reference Monitors, Defensive Programming, Threats and Attacks, Network Security, Introduction to Cryptography, Database Security.

**Prerequisites:** EECS 2110 with a minimum grade of D- and EECS 3540 with a minimum grade of D-**Term Offered:** Fall**EECS 4790 Network Security**

[4 credit hours]

Theory and practice of network security. Topics include firewalls, Windows, UNIX and TCP/IP network security. Security auditing, attacks, viruses, intrusion detection and threat analysis will also be covered.

**Prerequisites:** EECS 4720 with a minimum grade of D- or EECS 5720 with a minimum grade of C**Term Offered:** Spring**EECS 4800 Assured and Trusted Digital Microelectronics**

[3 credit hours]

This course will cover the following topics: Assurance and Trust, VHDL, Hardware Security and Trust for Integrated Circuits, Physical Unclonable Functions (PUFs), FPGA Security and Testing, Hardware Obfuscation, Counterfeit Chip Detection, Hardware Trojans, Side Channel Attacks, Hardware Cryptography, Block Chain Technology for IC Supply Chain Protection

**Prerequisites:** EECS 3100 with a minimum grade of C-**Term Offered:** Spring

**EECS 4980 Special Topics In EECS**

[1-4 credit hours]

Pilot offerings of new courses involving emerging topics of interest are introduced using this number. One credit per lecture/recitation hour and/or 2.5 lab hours per week.

**Term Offered:** Spring, Summer, Fall**EECS 4990 Independent Study In Eecs**

[1-4 credit hours]

Selected topics in electrical engineering or computer science and engineering. The instructor will specify the scope of the investigation and will meet regularly with the student(s). The study is expected to require an average of 3 hours student effort per week per credit.

**Term Offered:** Spring, Summer, Fall

## BS in Computer Science

Code	Title	Hours
ECON 1150	Principles Of Macroeconomics	3
or ECON 1200	Principles Of Macroeconomics	
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
MATH 1890	Elementary Linear Algebra	3
MATH 2850	Elementary Multivariable Calculus	4
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
or ENGL 2960	Professional and Business Writing	
PHIL 1010	Introduction To Logic	3
EECS 1030	Introduction to Computer Science and Engineering	3
EECS 1100	Digital Logic Design	4
EECS 1510	Introduction To Object Oriented Programming	4
EECS 2000	EECS Professional Development	1
EECS 2110	Computer Architecture and Organization	3
EECS 2500	Linear Data Structures	4
EECS 2510	Non-Linear Data Structures	4
EECS 2520	Discrete Structures	3
EECS 3150	Data Communications	3
EECS 3540	Operating Systems And Systems Programming	3
EECS 3550	Software Engineering	3
EECS 3560	Programming Languages and Paradigms	3
EECS 4010	Senior Design Project I	1
EECS 4020	Senior Design Project II	3
EECS 4100	Theory of Computation	3
EECS 4560	Database Systems I	3
EECS 4180: Computer Networks		3
EECS 4590	Algorithms	3
EECS 4760	Computer Security	3
EECS 3940	Co-Op Experience	1
EECS 3940	Co-Op Experience	1
EECS 3940	Co-Op Experience	1
MIME 4000	Engineering Statistics I	3
Social Sciences Core		3
Natural Science Core		3

Natural Science Core with Laboratory	4
Non-US Diversity	3
Arts/Humanities Core	3
EECS 3xxx/4xxx Electives	15
UT Core/US Diversity	3

**Total Hours 124****First Year**

First Term	Hours
ECON 1200 Principles Of Microeconomics or ECON 1150 or Principles Of Macroeconomics	3
PHIL 1010 Introduction To Logic	3
MATH 1850 Single Variable Calculus I	4
ENGL 1110 College Composition I	3
EECS 1030 Introduction to Computer Science and Engineering	3

**Hours 16****Second Term**

Natural Science Core	3
EECS 1510 Introduction To Object Oriented Programming	4
EECS 2000 EECS Professional Development	1
ENGL 2950 Technical Writing or ENGL 2960 or Professional and Business Writing	3
MATH 1860 Single Variable Calculus II	4

**Hours 15****Second Year****First Term**

Natural Science Core with Lab	4
EECS 1100 Digital Logic Design	4
EECS 2500 Linear Data Structures	4
MATH 2850 Elementary Multivariable Calculus	4

**Hours 16****Second Term**

EECS 3940 Co-Op Experience	1
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**Hours 1****Third Term**

EECS 2110 Computer Architecture and Organization	3
EECS 2520 Discrete Structures	3
EECS 2510 Non-Linear Data Structures	4
MATH 1890 Elementary Linear Algebra	3
Arts/Humanities Core	3

**Hours 16****Third Year****First Term**

EECS 3940 Co-Op Experience	1
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**Hours 1****Second Term**

EECS 3540 Operating Systems And Systems Programming	3
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EECS 3xxx/4xxx Electives: Technical Elective	3
EECS 3xxx/4xxx Electives:	3
Core Elective/ US Diversity	4

**Hours 13**

**Third Term**

EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>

**Fourth Year**

**First Term**

EECS 3150	Data Communications	3
EECS 3560	Programming Languages and Paradigms	3
MIME 4000	Engineering Statistics I	3
Social Science Core/Non- US Diversity		3

**Hours 12**

**Second Term**

EECS 4010	Senior Design Project I	1
EECS 4560	Database Systems I	3
EECS 4100	Theory of Computation	3
EECS 3550	Software Engineering	3
EECS 4180	Computer Networks	4
EECS 3xxx/4xxx Elective		3

**Hours 17**

**Third Term**

EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>

**Fifth Year**

**First Term**

EECS 4020	Senior Design Project II	3
EECS 4590	Algorithms	3
EECS 4760	Computer Security	3
EECS 4xxx Technical Elective		3
EECS 4xxx Technical Elective		3

**Hours 15**

**Total Hours 124**

- PLO CAC Outcome #1: Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- PLO CAC Outcome #2: Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- PLO CAC Outcome #3: Communicate effectively in a variety of professional contexts.
- PLO CAC Outcome #4: Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- PLO CAC Outcome #5: Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- PLO CAC Outcome #6: Apply computer science theory and software development fundamentals to produce computing-based solutions.

# BS in Computer Science and Engineering

Below is a sample plan of study. Consult your degree audit for your program requirements.

Computer Science and Engineering (p. 251)  
 Computer Science and Engineering - Microelectronics Security Concentration

## Computer Science and Engineering

**First Term Hours**

MATH 1850	Single Variable Calculus I	4
CHEM 1230	General Chemistry I	4
ENGL 1110	College Composition I	3
EECS 1030	Introduction to Computer Science and Engineering	3
PHIL 1010	Introduction To Logic	3

**Hours 17**

**Second Term**

MATH 1860	Single Variable Calculus II	4
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
EECS 2000	EECS Professional Development	1
EECS 1510	Introduction To Object Oriented Programming	4

**Hours 17**

ENGL 2950	Technical Writing	3
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**Hours 17**

**Third Term**

MATH 2850	Elementary Multivariable Calculus	4
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
EECS 1100	Digital Logic Design	4
EECS 2500	Linear Data Structures	4

**Hours 17**

**Fourth Term**

MATH 2860	Elementary Differential Equations	3
MATH 2890	Numerical Methods And Linear Algebra	3
EECS 2110	Computer Architecture and Organization	3
EECS 2300	Electric Circuits	4
EECS 2520	Discrete Structures	3

**Hours 16**

**Fifth Term**

EECS 3940	Co-Op Experience	1
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**Hours 1**

**Sixth Term**

EECS 2510	Non-Linear Data Structures	4
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EECS 3210	Signals and Systems	3
EECS 3400	Electronics I	4
Social Sciences Core		3
<b>Hours</b>		<b>14</b>
<b>Seventh Term</b>		
EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
<b>Eighth Term</b>		
EECS 3100	Embedded Systems	4
EECS 3150	Data Communications	3
MIME 4000	Engineering Statistics I	3
ECON 1150	Principles Of Macroeconomics	3
or ECON 1200	or Principles Of Microeconomics	
Arts/Humanities Core/Diversity of US		3
<b>Hours</b>		<b>16</b>
<b>Ninth Term</b>		
EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
<b>Tenth Term</b>		
EECS 3540	Operating Systems And Systems Programming	3
EECS 3550	Software Engineering	3
EECS 4010	Senior Design Project I	1
EECS 4100	Theory of Computation	3
EECS 4560	Database Systems I	3
Technical Elective		3
<b>Hours</b>		<b>16</b>
<b>Eleventh Term</b>		
EECS 4020	Senior Design Project II	3
Technical Elective		3
Technical Elective		3
Non-US Diversity		3
EECS 4760	Computer Security	3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>131</b>

### Computer Science and Engineering - Microelectronics Security Concentration

<b>First Term</b>		<b>Hours</b>
MATH 1850	Single Variable Calculus I	4
CHEM 1230	General Chemistry I	4
ENGL 1110	College Composition I	3
EECS 1030	Introduction to Computer Science and Engineering	3
PHIL 1010	Introduction To Logic	3
<b>Hours</b>		<b>17</b>
<b>Second Term</b>		
MATH 1860	Single Variable Calculus II	4
PHYS 2130	Physics For Science And Engineering Majors I	4

PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
EECS 2000	EECS Professional Development	1
EECS 1510	Introduction To Object Oriented Programming	4
ENGL 2950	Technical Writing	3
<b>Hours</b>		<b>17</b>

#### Third Term

MATH 2850	Elementary Multivariable Calculus	4
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
EECS 1100	Digital Logic Design	4
EECS 2500	Linear Data Structures	4
<b>Hours</b>		<b>17</b>

#### Fourth Term

MATH 2860	Elementary Differential Equations	3
MATH 2890	Numerical Methods And Linear Algebra	3
EECS 2110	Computer Architecture and Organization	3
EECS 2300	Electric Circuits	4
EECS 2520	Discrete Structures	3
<b>Hours</b>		<b>16</b>

#### Fifth Term

EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>

#### Sixth Term

EECS 2510	Non-Linear Data Structures	4
EECS 3210	Signals and Systems	3
EECS 3400	Electronics I	4
Social Sciences Core		3
<b>Hours</b>		<b>14</b>

#### Seventh Term

EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>

#### Eighth Term

EECS 3100	Embedded Systems	4
EECS 3150	Data Communications	3
MIME 4000	Engineering Statistics I	3
ECON 1150	Principles Of Macroeconomics	3
or ECON 1200	or Principles Of Microeconomics	
Arts/Humanities Core/Diversity of US		3
<b>Hours</b>		<b>16</b>

#### Ninth Term

EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>

#### Tenth Term

EECS 3540	Operating Systems And Systems Programming	3
EECS 3550	Software Engineering	3

EECS 4010	Senior Design Project I	1
EECS 4100	Theory of Computation	3
EECS 4560	Database Systems I	3
Technical Elective		3
<b>Hours</b>		<b>16</b>

**Eleventh Term**

EECS 4020	Senior Design Project II	3
Technical Elective		3
Technical Elective		3
Non-US Diversity		3
EECS 4760	Computer Security	3
<b>Hours</b>		<b>15</b>

**Total Hours 131**

- PLO CAC Outcome #1: Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- PLO CAC Outcome #2: Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- PLO CAC Outcome #3: Communicate effectively in a variety of professional contexts.
- PLO CAC Outcome #4: Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- PLO CAC Outcome #5: Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- PLO CAC Outcome #6: Apply computer science theory and software development fundamentals to produce computing-based solutions.
- PLO EAC Outcome #7: An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- PLO EAC Outcome #8: An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- PLO EAC Outcome #9: an ability to communicate effectively with a range of audiences.
- PLO EAC Outcome #10: An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- PLO EAC Outcome #11: an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- PLO EAC Outcome #12: An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- PLO EAC Outcome #13: An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

# BS in Electrical Engineering

Below is a sample plan of study. Consult your degree audit for your program requirements.

Electrical Engineering (p. 253)  
 Electrical Engineering - Assured Digital Microelectronics Concentration, BS (p. 254)

## Electrical Engineering

<b>First Term</b>		<b>Hours</b>
MATH 1850	Single Variable Calculus I	4
CHEM 1230	General Chemistry I	4
EECS 1000	Introduction to Electrical Engineering	3
ECON 1150	Principles Of Macroeconomics	3
or ECON 1200	or Principles Of Microeconomics	
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>17</b>

<b>Second Term</b>		<b>Hours</b>
MATH 1860	Single Variable Calculus II	4
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
EECS 2000	EECS Professional Development	1
EECS 1500	Introduction to Programming	3
ENGL 2950	Technical Writing	3
<b>Hours</b>		<b>16</b>

<b>Third Term</b>		<b>Hours</b>
MATH 2850	Elementary Multivariable Calculus	4
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
EECS 1100	Digital Logic Design	4
Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>

<b>Fourth Term</b>		<b>Hours</b>
MATH 2860	Elementary Differential Equations	3
MATH 2890	Numerical Methods And Linear Algebra	3
EECS 2110	Computer Architecture and Organization	3
EECS 2300	Electric Circuits	4
Diversity of US		3
<b>Hours</b>		<b>16</b>

<b>Fifth Term</b>		<b>Hours</b>
EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>

<b>Sixth Term</b>		<b>Hours</b>
EECS 3210	Signals and Systems	3
EECS 3220	Electric Circuits II	3
EECS 3400	Electronics I	4



EECS 3710	Electromagnetics I	3
Arts/Humanities Core/Non-US Diversity		3
<b>Hours</b>		<b>16</b>
<b>Seventh Term</b>		
EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
<b>Eighth Term</b>		
EECS 3100	Embedded Systems	4
EECS 3420	Electronics II	3
EECS 3460	Electrical Energy Conversion	3
CIVE 1150	Engineering Mechanics: Statics	3
or MIME 3400	or Thermodynamics I	
Social Sciences Core		3
<b>Hours</b>		<b>16</b>
<b>Ninth Term</b>		
EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
<b>Tenth Term</b>		
EECS 3300	Probabilistic Methods In Engineering	3
EECS 3440	Electronics Laboratory	1
EECS 3720	Electromagnetics II	3
EECS 4010	Senior Design Project I	1
EECS 4200	Feedback Control Systems	3
Technical Elective		3
<b>Hours</b>		<b>14</b>
<b>Eleventh Term</b>		
EECS 3480	Energy Conversion Laboratory	1
EECS 4020	Senior Design Project II	3
EECS 4360	Communication Systems	3
EECS 4600	Solid State Devices	4
Technical Elective		3
Technical Elective		3
<b>Hours</b>		<b>17</b>
<b>Total Hours</b>		<b>131</b>

### Electrical Engineering - Assured Digital Microelectronics Concentration, BS

		Hours
<b>First Term</b>		
MATH 1850	Single Variable Calculus I	4
CHEM 1230	General Chemistry I	4
EECS 1000	Introduction to Electrical Engineering	3
ECON 1150	Principles Of Macroeconomics	3
or ECON 1200	or Principles Of Microeconomics	
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>17</b>
<b>Second Term</b>		
MATH 1860	Single Variable Calculus II	4
PHYS 2130	Physics For Science And Engineering Majors I	4

PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
EECS 2000	EECS Professional Development	1
EECS 1500	Introduction to Programming	3
ENGL 2950	Technical Writing	3
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
MATH 2850	Elementary Multivariable Calculus	4
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
EECS 1100	Digital Logic Design	4
Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
MATH 2860	Elementary Differential Equations	3
MATH 2890	Numerical Methods And Linear Algebra	3
EECS 2110	Computer Architecture and Organization	3
EECS 2300	Electric Circuits	4
Diversity of US		3
<b>Hours</b>		<b>16</b>
<b>Fifth Term</b>		
EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
<b>Sixth Term</b>		
EECS 3210	Signals and Systems	3
EECS 3220	Electric Circuits II	3
EECS 3400	Electronics I	4
EECS 3710	Electromagnetics I	3
Arts/Humanities Core/Non-US Diversity		3
<b>Hours</b>		<b>16</b>
<b>Seventh Term</b>		
EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
<b>Eighth Term</b>		
EECS 3100	Embedded Systems	4
EECS 3420	Electronics II	3
EECS 3460	Electrical Energy Conversion	3
CIVE 1150	Engineering Mechanics: Statics	3
or MIME 3400	or Thermodynamics I	
Social Sciences Core		3
<b>Hours</b>		<b>16</b>
<b>Ninth Term</b>		
EECS 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
<b>Tenth Term</b>		
EECS 3300	Probabilistic Methods In Engineering	3
EECS 3440	Electronics Laboratory	1
EECS 3720	Electromagnetics II	3

EECS 4010	Senior Design Project I	1
EECS 4200	Feedback Control Systems	3
EECS 4050	VLSI and FPGA System Design & Applications	3.0
<b>Hours</b>		<b>14</b>
<b>Eleventh Term</b>		
EECS 3480	Energy Conversion Laboratory	1
EECS 4020	Senior Design Project II	3
EECS 4360	Communication Systems	3
EECS 4600	Solid State Devices	4
EECS 4720	Fundamentals of Cyber Security	3
EECS 4800	Assured and Trusted Digital Microelectronics	3
<b>Hours</b>		<b>17</b>
<b>Total Hours</b>		<b>131</b>

- PLO 1: an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- PLO 2: an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- PLO 3: an ability to communicate effectively with a range of audiences.
- PLO 4: an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- PLO 5: an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- PLO 6: an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- PLO 7: an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.
- PLO 8: the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- PLO 9: a recognition of the need for, and an ability to engage in life-long learning
- PLO 10: a knowledge of contemporary issues
- PLO 11: an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

## Minor in Computer Science

The College of Engineering offers several minors for students at The University of Toledo. These minors are recommended for students who want to enhance their academic programs with engineering-related course work and are intended to allow students to develop expertise in a discipline outside their majors. Students taking courses in these minors must meet course prerequisite requirements. Students should

contact advisors in the College of Engineering for additional details about the course requirements of minors and contact advisors in their home college to determine how the minors will fit into their degree curriculum.

Note that per University of Toledo policy, minors cannot be declared by students in the same major as a given minor since at least 12 hours of the minor must be distinct from any credit hours used to fulfill any major the student is pursuing.

Students may earn a minor in Computer Science by completing 7 EECS courses as listed below and score a minimum GPA of 2.70 with no D+, D, D- or F for any of the courses.

Eligibility to take the courses listed below requires students to be coded as CS minor candidates.

Code	Title	Hours
<b>Required Courses (all must be taken at UToledo)</b>		
EECS 1030	Introduction to Computer Science and Engineering	3
EECS 1510	Introduction To Object Oriented Programming	4
EECS 2500	Linear Data Structures	4
EECS 2510	Non-Linear Data Structures	4
EECS 2520	Discrete Structures	3
<b>Take 2 from below list (all must be taken at UToledo and some might require additional prerequisites)</b>		<b>6</b>
EECS 3540	Operating Systems And Systems Programming	
EECS 3550	Software Engineering	
EECS 4100	Theory of Computation	
EECS 4530	Computer Graphics I	
EECS 4560	Database Systems I	
EECS 4740	Artificial Intelligence	
EECS 4750	Machine Learning	
EECS 4760	Computer Security	
<b>Total Hours</b>		<b>24</b>

- PLO 1. Analyze a computing problem and to apply principles of computing to identify solutions.
- PLO 2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements.
- PLO 3. Apply computer science theory and software development fundamentals to produce computing-based solutions.

## Department of Engineering Technology

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An education in engineering technology emphasizes problem solving, technical skills and extensive laboratory experience to integrate theory and practice. The curriculum includes a solid foundation in applied sciences and mathematics.

## Degrees Offered

- BS in Computer Science and Engineering Technology (p. 257)
- BS in Construction Engineering Technology (p. 258)
- BS in Cyber Security (p. 259)
- BS in Electrical Engineering Technology (p. 261)
- BS in Information Technology (p. 263)
- BS in Mechanical Engineering Technology (p. 265)
- Minor in Cyber Security (p. 266)
- Minor in Software Engineering (p. 266)

### ENGT 1000 Engineering Technology Orientation

[1 credit hour]

Overview of careers in engineering technology, information about each program in Engineering Technology, and skills required for success in technological fields, such as computer skills.

**Term Offered:** Spring, Fall

### ENGT 2000 Professional Development

[1 credit hour]

An introduction to the performance expectations of the engineering profession. Topics covered include resume writing, public speaking, interviewing skills, ethics, social responsibilities and the value of continuing education and professional registration.

**Prerequisites:** ENGT 1000 with a minimum grade of D-

**Term Offered:** Spring, Fall

### ENGT 2500 Technical Project Management

[3 credit hours]

General methodology of managing a technical project from concept to operational use. Emphasis is on the functions and responsibilities of the project manager related to maintaining project control and team management.

**Term Offered:** Spring, Fall

### ENGT 3010 Applied Statistics And Design Of Experiments

[4 credit hours]

Introduction to probability, statistical inference and design of experiments. Topics include confidence intervals, tests of hypothesis, regression, analysis of variance, factorial experimental designs and propagation of experimental errors.

**Prerequisites:** MATH 2460 with a minimum grade of C- or MATH 1860 with a minimum grade of C- or MATH 1730 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

### ENGT 3020 Applied Engineering Mathematics

[3 credit hours]

Introduction to partial derivatives, series expansions, complex variables, differential equations and Laplace transform analysis. Application of computers for numerical solution techniques.

**Prerequisites:** (MATH 2460 with a minimum grade of C- or MATH 1860 with a minimum grade of C-) and ENGL 1110 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### ENGT 3050 Fundamentals Of Electricity

[0-4 credit hours]

An introduction to basic analytical techniques for resistive and reactive DC and AC electric circuits, and an introduction to electronic devices, including diodes and transistors.

**Prerequisites:** MATH 1330 with a minimum grade of D- or MATH 1730 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

### ENGT 3600 Engineering Economics

[3 credit hours]

Fundamentals of analysis of engineering projects and capital investment decisions. Review of break-even analyses, rate of return, cost benefit ratios and tax and inflation implications will be performed.

**Term Offered:** Spring, Fall

### ENGT 3940 Co-Op Experience

[1 credit hour]

Approved co-op work experience. Course may be repeated.

**Prerequisites:** ENGT 2000 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### ENGT 3950 Co-op Experience

[1 credit hour]

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

**Prerequisites:** ENGT 3940 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### ENGT 4050 Senior Technology Capstone

[3 credit hours]

A comprehensive problem in engineering technology is assigned to a group of students who work together as a team to present a solution in a formal written and oral report.

**Term Offered:** Spring, Fall

### ENGT 4900 Engineering Review For Professional Certification

[3 credit hours]

A review and application of general engineering principles and procedures in preparation for the Fundamentals of Engineering (FE) exam. Offered for students preparing to take the exam and for those considering it.

### ENGT 4980 Special Topics In Engineering Technology

[1-4 credit hours]

Selected topics in engineering technology with emphasis on intensive investigation of recent literature in areas of special interest.

**Term Offered:** Spring, Summer, Fall



# BS in Computer Science and Engineering Technology

The computer science and engineering technology program provides hands-on curriculum with an in-depth understanding of computer hardware and software as they relate to computer design and applications. Students get a solid foundation in the principles of electronics, with an emphasis on installation, maintenance and troubleshooting of computer systems. They also learn about the use of software in engineering technology, which requires a knowledge of programming and computer operating systems.

Below is a sample plan of study. Consult your degree audit for your program requirements.

- BS in Computer Science and Engineering Technology
- BS in Computer Science and Engineering Technology - Cyber Security Concentration (p. 257)

## BS in Computer Science and Engineering Technology

First Term		Hours
CSET 1100	Introduction to Computer Science and Engineering Technology	4
EET 2420	Electrical Instrumentation Laboratory	1
PHIL 1010	Introduction To Logic	3
ENGT 1000	Engineering Technology Orientation	1
ENGL 1110	College Composition I	3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>
Second Term		Hours
CSET 1200	Object Oriented Programming and Data Structures	3
Communications Elective		3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
EET 2210	Digital Logic Fundamentals	4
ENGL 2950	Technical Writing	3
<b>Hours</b>		<b>18</b>
Third Term		Hours
MATH 2450	Calculus For Engineering Technology I	4
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
CSET 2200	PC and Industrial Networks	4
CSET 2230	Assembly Language and Computer Architecture	4
<b>Hours</b>		<b>17</b>
Fourth Term		Hours
ENGT 3050	Fundamentals Of Electricity	4
MATH 2460	Calculus For Engineering Technology II	4
EET 2410	Mechatronics I	4
CSET 2520	Discrete Structures	3

Social Sciences Core		3
<b>Hours</b>		<b>18</b>
Fifth Term		Hours
ENGT 2000	Professional Development	1
ENGT 3010	Applied Statistics And Design Of Experiments	4
EET 3350	Embedded Systems Design	4
MATH 2890	Numerical Methods And Linear Algebra	3
CSET Technical Elective		3
<b>Hours</b>		<b>15</b>
Sixth Term		Hours
Natural Sciences Core		4
CSET 3150	Introduction to Algorithms	4
CSET 3300	Database-Driven Web Sites	4
<b>Hours</b>		<b>12</b>
Seventh Term		Hours
Professional Development Elective		3
CSET 3600	Software Engineering and Human Interfacing	4
CSET 4350	Operating Systems	3
CSET 4750	Computer Networks And Data Communication	4
Diversity of US		3
<b>Hours</b>		<b>17</b>
Eighth Term		Hours
Professional Development Elective		3
Arts/Humanities Core/Non-US Diversity		3
CSET 4250	Applied Programming Languages	3
ENGT 4050	Senior Technology Capstone	3
CSET 4850	Computer and Network Security	4
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>128</b>

## BS in Computer Science and Engineering Technology - Cyber Security Concentration

Students in the BS Computer Science and Engineering Technology – Cyber Security Concentration must take cyber security related projects in the following classes: CSET 3300, CSET 4850, and ENGT 4050. Please, consult the CSET Program Director for additional information.

Other than that, the plan of study is the same as that for EN-CSET-BCT: Computer Science and Engineering Technology, BS

First Term		Hours
CSET 1100	Introduction to Computer Science and Engineering Technology	4
EET 2420	Electrical Instrumentation Laboratory	1
PHIL 1010	Introduction To Logic	3
ENGT 1000	Engineering Technology Orientation	1
ENGL 1110	College Composition I	3
Social Sciences Core		3



<b>Second Term</b>		
CSET 1200	Object Oriented Programming and Data Structures	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Communications Elective		3
EET 2210	Digital Logic Fundamentals	4
ENGL 2950	Technical Writing	3
<b>Hours</b>		<b>18</b>

<b>Third Term</b>		
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
MATH 2450	Calculus For Engineering Technology I	4
CSET 2200	PC and Industrial Networks	4
CSET 2230	Assembly Language and Computer Architecture	4
<b>Hours</b>		<b>17</b>

<b>Fourth Term</b>		
ENGT 3050	Fundamentals Of Electricity	4
MATH 2460	Calculus For Engineering Technology II	4
CSET 2520	Discrete Structures	3
EET 2410	Mechatronics I	4
Social Sciences Core		3
<b>Hours</b>		<b>18</b>

<b>Fifth Term</b>		
ENGT 2000	Professional Development	1
ENGT 3010	Applied Statistics And Design Of Experiments	4
EET 3350	Embedded Systems Design	4
MATH 2890	Numerical Methods And Linear Algebra	3
CSET Technical Elective		3
<b>Hours</b>		<b>15</b>

<b>Sixth Term</b>		
Natural Sciences Core		
CSET 3150	Introduction to Algorithms	4
CSET 3300	Database-Driven Web Sites	4
<b>Hours</b>		<b>12</b>

<b>Seventh Term</b>		
Professional Development Elective		
CSET 3600	Software Engineering and Human Interfacing	4
CSET 4350	Operating Systems	3
CSET 4750	Computer Networks And Data Communication	4
Diversity of US		3
<b>Hours</b>		<b>17</b>

<b>Eighth Term</b>		
Professional Development Elective		
Arts/Humanities Core/Non-US Diversity		3
CSET 4850	Computer and Network Security	4

CSET 4250	Applied Programming Languages	3
ENGT 4050	Senior Technology Capstone	3
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>128</b>

- The program has the following student learning outcomes: PLO 1. an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems appropriate to the discipline.
- PLO 2. an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline
- PLO 3. an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- PLO 4. an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and
- PLO 5. an ability to function effectively as a member as well as a leader on technical teams. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- PLO 6. an ability to apply computer science theory and software development fundamentals to produce computing-based solutions (CAC CS Program Criteria).

The program educational objectives of the Computer Science and Engineering Technology program will result in graduates that will:

1. Assume leadership roles in business and industry and make technical contributions to design, development, and manufacturing in their practice of computer science and engineering technology, computer networks and computer information systems.
2. Have a sufficient depth of understanding in computer science and the skills, confidence, professionalism, and experience necessary for successful careers in computer science and related fields.
3. Demonstrate professionalism and a sense of societal and ethical responsibility in all their endeavors.
4. Engage in professional development or post-graduate education to pursue flexible career paths adapting to future technological changes.

## BS in Construction Engineering Technology

The construction engineering technology program combines civil engineering and construction management curriculums. We offer unique courses that distinguish us from our competitors. Courses are grounded in practical applications, rather than theory. Every class has a laboratory component or project that tackles a real-world problem.

<b>First Term</b>		<b>Hours</b>
ENGT 1000	Engineering Technology Orientation	1
MATH 1330	Trigonometry	3
ENGL 1110	College Composition I	3
CET 1010	Intro to Constr Eng Technology	1

CET 1100	Architectural Drafting	3
CET 1150	Construction Materials And Codes	3
<b>Hours</b>		<b>14</b>
<b>Second Term</b>		
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
ENGL 2950	Technical Writing	3
CET 1210	Surveying	3
CET 1250	Building Systems	3
Social Sciences Core		3
<b>Hours</b>		<b>17</b>
<b>Third Term</b>		
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
MATH 2450	Calculus For Engineering Technology I	4
CET 1200	Engineering Mechanics	4
CET 2110	Materials Testing	3
CET 2010	Construction Safety	1
<b>Hours</b>		<b>17</b>
<b>Fourth Term</b>		
CET 2030	Construction Graphics	3
CET 2060	Construction Estimating	3
CET 2220	Soil Mechanics	3
CET 2250	Structural Design	4
Social Sciences Core		3
<b>Hours</b>		<b>16</b>
<b>Fifth Term</b>		
CET 3010	Architectural CADD	4
CET 3210	Surveying Applications	3
Communication Elective		3
MATH 2460	Calculus For Engineering Technology II	4
Natural Sciences Core		3
<b>Hours</b>		<b>17</b>
<b>Sixth Term</b>		
Professional Development or Technical Elective		3
CET 3120	Advanced Construction Materials	3
CET 3160	Contracts and Specifications	3
CET 3220	Hydrology And Hydraulics	3
ENGT 3010	Applied Statistics And Design Of Experiments	4
<b>Hours</b>		<b>16</b>
<b>Seventh Term</b>		
Professional Development or Technical Elective		3
Arts/Humanities Core		3
CET 4250	Advanced Structural Design	4
CET 4460	Construction Management And Scheduling	3
ENGT 3600	Engineering Economics	3
<b>Hours</b>		<b>16</b>

**Eighth Term**

CET 4350	Soils, Foundations And Earth Structures	3
ENGT 4050	Senior Technology Capstone	3
Professional Development or Technical Elective		3
Diversity of US		3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>128</b>

- PLO (1)(1) an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems appropriate to the discipline;
- PLO (2) an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
- PLO (3) an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- PLO (4) an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and
- PLO (5) an ability to function effectively as a member as well as a leader on technical teams.

## BS in Cyber Security

Code	Title	Hours
CSET 1100	Introduction to Computer Science and Engineering Technology	4
PHIL 1010	Introduction To Logic	3
ENGT 1000	Engineering Technology Orientation	1
ENGL 1110	College Composition I	3
Social Science Elective. Select one approved 3 semester hour course from Anthropology (ANTH), Economics (ECON), Geography (GEPL), Political Science (PSC), Psychology (PSY), Social Work (SOCW) or Sociology (SOC).		3
CSET 1200	Object Oriented Programming and Data Structures	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Select one of the following Communications Elective		3
COMM 2600	Public Presentations	
COMM 2820	Group Communication	
COMM 2840	Interpersonal Communication	
ENGL 2950	Technical Writing	3
MATH 2450	Calculus For Engineering Technology I	4
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
Multicultural Elective. Select one 3 semester hour course that satisfies the Diversity of U.S. Culture requirement.		3
CSET 2200	PC and Industrial Networks	4
MATH 2460	Calculus For Engineering Technology II	4
CYBR 1400	Ethical Behavior in Computing	4



CSET 2520	Discrete Structures	3
CYBR 2410	Digital Forensics	3
Social Science Elective. Select one approved 3 semester hour course from Anthropology (ANTH), Economics (ECON), Geography (GEPL), Political Science (PSC), Psychology (PSY), Social Work (SOCW) or Sociology (SOC).		3
MATH 2890	Numerical Methods And Linear Algebra	3
ENGT 2000	Professional Development	1
ENGT 3010	Applied Statistics And Design Of Experiments	4
CYBR 3350	Managing Security Projects	3
CYBR 3200	Client-Server Security Models	3
Natural Science Elective. Select one course from: Anatomy/ Physiology (EXSC), Astronomy (ASTR), Biology (BIOL), Chemistry (CHEM), Earth, Ecology and Environmental Science (EEES), or Physics (PHYS).		4
CSET 3150	Introduction to Algorithms	4
CSET 3300	Database-Driven Web Sites	4
EECS 4720	Fundamentals of Cyber Security	3
INFS 3400	Principles of Information Systems Security	3
CSET 4250	Applied Programming Languages	3
CSET 3600	Software Engineering and Human Interfacing	4
CSET 4350	Operating Systems	3
CSET 4750	Computer Networks And Data Communication	4
CYBR 4500	Risk Vulnerability Analysis	3
Humanities/Multicultural Elective. Select one 3 semester hour Humanities/Fine Arts elective that also satisfies one of the two multi-cultural elective requirements ("double-dip"). Do not select a Philosophy (PHIL) course.		3
CYBR 4200	Software Assurance	4
ENGT 4050	Senior Technology Capstone	3
CSET 4850	Computer and Network Security	4
<b>Total Hours</b>		<b>124</b>

**First Year**

<b>First Term</b>		<b>Hours</b>
CSET 1100	Introduction to Computer Science and Engineering Technology	4
PHIL 1010	Introduction To Logic	3
ENGT 1000	Engineering Technology Orientation	1
ENGL 1110	College Composition I	3
Social Science Elective		3
<b>Hours</b>		<b>14</b>

**Second Term**

CSET 1200	Object Oriented Programming and Data Structures	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Communication Elective		3
ENGL 2950	Technical Writing	3
<b>Hours</b>		<b>14</b>

**Second Year****First Term**

MATH 2450	Calculus For Engineering Technology I	4
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
CSET 2200	PC and Industrial Networks	4
Multicultural Elective		3
<b>Hours</b>		<b>16</b>

**Second Term**

MATH 2460	Calculus For Engineering Technology II	4
CYBR 1400	Ethical Behavior in Computing	4
CSET 2520	Discrete Structures	3
CYBR 2410	Digital Forensics	3
Social Science Elective		3
<b>Hours</b>		<b>17</b>

**Third Year****First Term**

MATH 2890	Numerical Methods And Linear Algebra	3
ENGT 2000	Professional Development	1
ENGT 3010	Applied Statistics And Design Of Experiments	4
CYBR 3350	Managing Security Projects	3
CYBR 3200	Client-Server Security Models	3
<b>Hours</b>		<b>14</b>

**Second Term**

Natural Sciences Elective		4
CSET 3150	Introduction to Algorithms	4
CSET 3300	Database-Driven Web Sites	4
EECS 4720	Fundamentals of Cyber Security	3
<b>Hours</b>		<b>15</b>

**Fourth Year****First Term**

INFS 3400	Principles of Information Systems Security	3
CSET 4250	Applied Programming Languages	3
CSET 3600	Software Engineering and Human Interfacing	4
CSET 4350	Operating Systems	3
CSET 4750	Computer Networks And Data Communication	4
<b>Hours</b>		<b>17</b>

**Second Term**

CYBR 4500	Risk Vulnerability Analysis	3
Humanities/Multicultural Elective		3
CYBR 4200	Software Assurance	4
ENGT 4050	Senior Technology Capstone	3
CSET 4850	Computer and Network Security	4
<b>Hours</b>		<b>17</b>
<b>Total Hours</b>		<b>124</b>

- 1. An ability to apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline.
- 2. An ability to design systems, components, or processes meeting specified needs for broadly defined engineering problems appropriate to the discipline.
- 3. An ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments, and an ability to identify and use appropriate technical literature.
- 4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes.
- 5. An ability to function effectively as a member as well as a leader on technical teams.
- 6. An ability to apply security principles and practices to maintain operations in the presence of risks and threats.

## BS in Electrical Engineering Technology

The electrical engineering technology program emphasizes the application of electrical principles to manufacturing, maintenance, testing, installation, and inspection. There is a strong focus on computer simulation, software application and technical skills.

Below is a sample plan of study. Consult your degree audit for your program requirements.

- Electrical Engineering Technology (p. 261)
- Electrical Engineering Technology, Concentration in Mechanical, BS (p. 261)
- Electrical Engineering Technology-Concentration in Mechatronics, BS (p. 262)

### Electrical Engineering Technology

First Term		Hours
ENGT 1000	Engineering Technology Orientation	1
MATH 1330	Trigonometry	3
ENGL 1110	College Composition I	3
EET 1010	DC Circuits	4
CHEM 1230	General Chemistry I	4
<b>Hours</b>		<b>15</b>
Second Term		Hours
ENGL 2950	Technical Writing	3
Social Sciences Core		3
EET 1410	Electrical Drafting	3
EET 1020	AC Circuits	4
EET 2210	Digital Logic Fundamentals	4
<b>Hours</b>		<b>17</b>
Third Term		Hours
MATH 2450	Calculus For Engineering Technology I	4
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1

Communications Elective		3
EET 2010	Electronic Principles	4
<b>Hours</b>		<b>16</b>

Fourth Term		Hours
MATH 2460	Calculus For Engineering Technology II	4
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
EET 2020	Electronic Device Applications	4
CSET 2200	PC and Industrial Networks	4
<b>Hours</b>		<b>17</b>

Fifth Term		Hours
ENGT 3010	Applied Statistics And Design Of Experiments	4
ENGT 3020	Applied Engineering Mathematics	3
EET 3150	C Programming	4
EET 2410	Mechatronics I	4
<b>Hours</b>		<b>15</b>

Sixth Term		Hours
Diversity of US		3
EET 3250	Network Analysis	3
EET 3350	Embedded Systems Design	4
EET 4550	Mechatronics II	4
MET 2100	Statics For Technology	3
<b>Hours</b>		<b>17</b>

Seventh Term		Hours
EET 4150	Analog Systems Design	4
EET 4250	Database Applications for Industry	4
or EET 4300	or Motors and Generators	
or EET 4350	or Electric Power Systems	
EET 4350	Electric Power Systems	4
or EET 4250	or Database Applications for Industry	
or EET 4300	or Motors and Generators	
Arts/Humanities Core		3
Arts/Humanities Core/Non-US Diversity		3
<b>Hours</b>		<b>18</b>

Eighth Term		Hours
Elective - Professional Development		3
Social Sciences Core		3
EET 4450	Automatic Control Systems	4
ENGT 4050	Senior Technology Capstone	3
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>128</b>

### Electrical Engineering Technology, Concentration in Mechanical, BS

First Term		Hours
ENGT 1000	Engineering Technology Orientation	1
MATH 1330	Trigonometry	3
ENGL 1110	College Composition I	3
EET 1010	DC Circuits	4



CHEM 1230	General Chemistry I	4
<b>Hours</b>		<b>15</b>
<b>Second Term</b>		
ENGL 2950	Technical Writing	3
Social Sciences Core		3
EET 1410	Electrical Drafting	3
EET 1020	AC Circuits	4
EET 2210	Digital Logic Fundamentals	4
<b>Hours</b>		<b>17</b>
<b>Third Term</b>		
MATH 2450	Calculus For Engineering Technology I	4
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Communications Elective		3
EET 2010	Electronic Principles	4
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
MATH 2460	Calculus For Engineering Technology II	4
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
EET 2020	Electronic Device Applications	4
CSET 2200	PC and Industrial Networks	4
<b>Hours</b>		<b>17</b>
<b>Fifth Term</b>		
ENGT 3010	Applied Statistics And Design Of Experiments	4
ENGT 3020	Applied Engineering Mathematics	3
EET 3150	C Programming	4
EET 2410	Mechatronics I	4
MET 2100	Statics For Technology	3
<b>Hours</b>		<b>18</b>
<b>Sixth Term</b>		
Diversity of US		3
EET 3250	Network Analysis	3
EET 3350	Embedded Systems Design	4
MET 2210	Technical Thermodynamics	4
<b>Hours</b>		<b>14</b>
<b>Seventh Term</b>		
EET 4300	Motors and Generators	4
or EET 4350	or Electric Power Systems	
MET 2050	Fluid And Hydraulic Mechanics	4
MET 2120	Strength Of Materials For Technology	4
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
<b>Eighth Term</b>		
Elective - Professional Development		3
EET 4450	Automatic Control Systems	4
ENGT 4050	Senior Technology Capstone	3
Arts/Humanities Core		3

Arts/Humanities Core	3
<b>Hours</b>	<b>16</b>
<b>Total Hours</b>	<b>128</b>

## Electrical Engineering Technology-Concentration in Mechatronics, BS

<b>First Term</b>		<b>Hours</b>
ENGT 1000	Engineering Technology Orientation	1
MATH 1330	Trigonometry	3
ENGL 1110	College Composition I	3
EET 1010	DC Circuits	4
CHEM 1230	General Chemistry I	4
<b>Hours</b>		<b>15</b>
<b>Second Term</b>		
ENGL 2950	Technical Writing	3
Social Sciences Core		3
EET 1410	Electrical Drafting	3
EET 1020	AC Circuits	4
EET 2210	Digital Logic Fundamentals	4
<b>Hours</b>		<b>17</b>
<b>Third Term</b>		
MATH 2450	Calculus For Engineering Technology I	4
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Communications Elective		3
EET 2010	Electronic Principles	4
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
MATH 2460	Calculus For Engineering Technology II	4
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
EET 2020	Electronic Device Applications	4
CSET 2200	PC and Industrial Networks	4
<b>Hours</b>		<b>17</b>
<b>Fifth Term</b>		
ENGT 3010	Applied Statistics And Design Of Experiments	4
ENGT 3020	Applied Engineering Mathematics	3
EET 3150	C Programming	4
EET 2410	Mechatronics I	4
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
Diversity of US		3
EET 3250	Network Analysis	3
EET 3350	Embedded Systems Design	4
Select one of the following:		4
EET 4550	Mechatronics II	
EET 4150	Analog Systems Design	
EET 4250	Database Applications for Industry	

EET 4600	Industrial Robotics	
EET 4650	Industrial Robotics Vision	
MET 2100	Statics For Technology	3
<b>Hours</b>		<b>17</b>

**Seventh Term**

Select one of the following:		4
EET 4150	Analog Systems Design	
EET 4250	Database Applications for Industry	
EET 4550	Mechatronics II	
EET 4600	Industrial Robotics	
EET 4650	Industrial Robotics Vision	
EET 4300	Motors and Generators	4
or EET 4350	or Electric Power Systems	
Arts/Humanities Core		3
Arts/Humanities Core		3
Arts/Humanities Core/Non-US Diversity		3
<b>Hours</b>		<b>17</b>

**Eighth Term**

Elective - Professional Development		3
EET 4450	Automatic Control Systems	4
Select one of the following:		4
EET 4150	Analog Systems Design	
EET 4250	Database Applications for Industry	
EET 4550	Mechatronics II	
EET 4600	Industrial Robotics	
EET 4650	Industrial Robotics Vision	
ENGT 4050	Senior Technology Capstone	3
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>128</b>

- PLO1. an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems appropriate to the discipline;
- PLO 2. an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
- PLO 3. an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- PLO 4. an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and
- PLO 5. an ability to function effectively as a member as well as a leader on technical teams.

## BS in Information Technology

The information technology program provides a broad base of core, computer-related skills, and knowledge – programming, networking, human computer interaction, databases, and web systems. Students become technically competent in computer systems and learn how to

manage existing technologies. But they also learn “context” – how to advocate for users.

Below is a sample plan of study. Consult your degree audit for your program requirements.

### Information Technology, BS Information Technology- Cyber Security Concentration, BS (p. 264)

#### Information Technology, BS Plan of Study

<b>First Term</b>		<b>Hours</b>
CSET 1100	Introduction to Computer Science and Engineering Technology	4
MATH 1730	Calculus with Applications to Business and Finance	5
ECON 1150	Principles Of Macroeconomics	3
ENGT 1000	Engineering Technology Orientation	1
ENGL 1110	College Composition I	3

**Hours 16**

**Second Term**

CSET 1200	Object Oriented Programming and Data Structures	3
ECON 1200	Principles Of Microeconomics	3
Natural Sciences Core and Natural Science Core Laboratory		4
ENGL 2950	Technical Writing	3
Social Sciences Core		3

**Hours 16**

**Third Term**

BUAD 2040	Financial Accounting Information	3
ENGT 2500	Technical Project Management	3
ITEC 2100	Small Computer Systems	3
Diversity of US		3
Arts/Humanities Core		3

**Hours 15**

**Fourth Term**

ENGT 3050	Fundamentals Of Electricity	4
BUAD 2020	Information Technology Management	3
BUAD 2050	Accounting For Business Decision-Making	3
Communications Elective		3
CSET 2200	PC and Industrial Networks	4

**Hours 17**

**Fifth Term**

ENGT 3010	Applied Statistics And Design Of Experiments	4
CSET 3200	Client/Server Computing	3
CSET 3100	Advanced Web Site Design	3
INFS 3770	Introduction To Database Systems	3
Art/Humanities Core		3

**Hours 16**

**Sixth Term**

Technical/Professional Development Elective		3
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CSET 3300	Database-Driven Web Sites	4
BUAD 3020	Principles Of Manufacturing And Service Systems	3
CSET 3250	Client-Side Scripting	3
INFS 4300	Web Application Development II	3
<b>Hours</b>		<b>16</b>
<b>Seventh Term</b>		
Technical/Professional Development Elective		3
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
CSET 4100	SERVER-SIDE PROGRAMMING	3
CSET 4750	Computer Networks And Data Communication	4
CSET 4150	Web Server Administration	3
<b>Hours</b>		<b>16</b>
<b>Eighth Term</b>		
Technical/Professional Development Elective		3
CSET 4250	Applied Programming Languages	3
ENGT 4050	Senior Technology Capstone	3
CSET 4850	Computer and Network Security	4
Natural Sciences Core		3
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>128</b>

## Information Technology- Cyber Security Concentration, BS

Students in the BS Information Technology – Cyber Security Concentration must take cyber security related projects in the following classes: CSET 3300, CSET 4850, and ENGT 4050. Please, consult the IT Program Director for additional information.

		Hours
<b>First Term</b>		
CSET 1100	Introduction to Computer Science and Engineering Technology	4
MATH 1730	Calculus with Applications to Business and Finance	5
ECON 1150	Principles Of Macroeconomics	3
ENGT 1000	Engineering Technology Orientation	1
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>16</b>
<b>Second Term</b>		
CSET 1200	Object Oriented Programming and Data Structures	3
Social Sciences Core		3
ECON 1200	Principles Of Microeconomics	3
Natural Sciences Core and Natural Science Core Laboratory		4
ENGL 2950	Technical Writing	3
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
BUAD 2040	Financial Accounting Information	3
ENGT 2500	Technical Project Management	3

ITEC 2100	Small Computer Systems	3
Diversity of US		3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
ENGT 3050	Fundamentals Of Electricity	4
BUAD 2020	Information Technology Management	3
BUAD 2050	Accounting For Business Decision-Making	3
Communication Elective		3
CSET 2200	PC and Industrial Networks	4
<b>Hours</b>		<b>17</b>
<b>Fifth Term</b>		
ENGT 3010	Applied Statistics And Design Of Experiments	4
CSET 3200	Client/Server Computing	3
CSET 3100	Advanced Web Site Design	3
INFS 3770	Introduction To Database Systems	3
Art/Humanities Core/ Non-US Diversity		3
<b>Hours</b>		<b>16</b>
<b>Sixth Term</b>		
Technical/Professional Development Elective		3
CSET 3300	Database-Driven Web Sites	4
BUAD 3020	Principles Of Manufacturing And Service Systems	3
CSET 3250	Client-Side Scripting	3
INFS 4300	Web Application Development II	3
<b>Hours</b>		<b>16</b>
<b>Seventh Term</b>		
Technical/Professional Development Elective		3
CSET 4100	SERVER-SIDE PROGRAMMING	3
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
CSET 4750	Computer Networks And Data Communication	4
CSET 4150	Web Server Administration	3
<b>Hours</b>		<b>16</b>
<b>Eighth Term</b>		
Technical/Professional Development Elective		3
CSET 4250	Applied Programming Languages	3
ENGT 4050	Senior Technology Capstone	3
CSET 4850	Computer and Network Security	4
Natural Sciences Core		3
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>128</b>

## Information Technology, BS Learning Outcomes

- PLO 1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.



- PLO 2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- PLO 3. Communicate effectively in a variety of professional contexts. \n
- PLO 4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- PLO 5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- PLO 6. Use systemic approaches to select, develop, apply, integrate, and administer secure computing technologies to accomplish user goals. [IT program criteria].

### Information Technology- Cyber Security Concentration, BS Learning Outcomes

- PLO 1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- PLO 2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- PLO 3. Communicate effectively in a variety of professional contexts. \n
- PLO 4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- PLO 5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- PLO 6. Use systemic approaches to select, develop, apply, integrate, and administer secure computing technologies to accomplish user goals. [IT program criteria].

The program educational objectives of the Information Technology program will produce graduates that will:

1. Obtain positions as information technology professionals in various industries and government agencies that are involved in the creation, maintenance, and use of computers, computer networks, and computer information systems.
2. Demonstrate effective problem-solving skills that will enable them to be successful professionals.
3. Function effectively in a professional environment.
4. Continue their studies in IT-related graduate programs to enable their careers in information technology.

## BS in Mechanical Engineering Technology

The mechanical engineering technology program emphasizes hands-on and problem-solving skills. Students learn how to model, design, develop, test, and supervise advanced mechanical systems and processes. We prepare students with the practical knowledge and skills to enter careers in automotive and manufacturing in general, automation and control, invention, and entrepreneurship.

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
ENGT 1000	Engineering Technology Orientation	1
MATH 1330	Trigonometry	3
MET 1020	Technical Drawing	3
MET 1050	Computers for Engineering Technology	3
MET 1110	Metal Machining And Processes	3
Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>
Second Term		Hours
ENGL 1110	College Composition I	3
ENGT 2000	Professional Development	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
MET 1120	Metal Machining & Processes Lab	1
MET 1250	Computer Aided Drafting and Design	3
Social Sciences Core		3
<b>Hours</b>		<b>16</b>
Third Term		Hours
ENGL 2950	Technical Writing	3
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
MATH 2450	Calculus For Engineering Technology I	4
MET 2100	Statics For Technology	3
MET 2350	Advanced Computer Aided Drafting and Design	3
<b>Hours</b>		<b>18</b>
Fourth Term		Hours
MET 2050	Fluid And Hydraulic Mechanics	4
MATH 2460	Calculus For Engineering Technology II	4
MET 2210	Technical Thermodynamics	4
MET 2120	Strength Of Materials For Technology	4
<b>Hours</b>		<b>16</b>
Fifth Term		Hours
MET 3400	Applied Dynamics	3
COMM 2820	Group Communication	3
ENGT 3010	Applied Statistics And Design Of Experiments	4
ENGT 3020	Applied Engineering Mathematics	3
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
<b>Hours</b>		<b>18</b>
Sixth Term		Hours
MET 3200	Mechanical Design I	3
MET 3100	Applied Thermodynamics	4
Technical Elective		3
MET 2310	Materials Science	3



MET 2320	Materials Science Laboratory	1
<b>Hours</b>		<b>14</b>
<b>Seventh Term</b>		
MET 4200	Mechanical Design II	3
Social Sciences Core		3
MET 4100	Applied Fluid Mechanics	4
ENGT 3050	Fundamentals Of Electricity	4
Diversity of US		3
<b>Hours</b>		<b>17</b>
<b>Eighth Term</b>		
ENGT 4050	Senior Technology Capstone	3
EET 4450	Automatic Control Systems	4
Professional Development Elective		3
Arts/Humanities Core/Non-US Diversity		3
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>128</b>

- PLO 1. an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;
- PLO 2. an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
- PLO 3. an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- PLO 4. an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and
- PLO 5. an ability to function effectively as a member as well as a leader on technical teams.

## Minor in Cyber Security

The College of Engineering offers several minors for students at The University of Toledo. These minors are recommended for students who want to enhance their academic programs with engineering-related course work and are intended to allow students to develop expertise in a discipline outside their majors. Students taking courses in these minors must meet course prerequisite requirements. Students should contact advisors in the College of Engineering for additional details about the course requirements of minors and contact advisors in their home college to determine how the minors will fit into their degree curriculum.

Note that per University of Toledo policy, minors cannot be declared by students in the same major as a given minor since at least 12 hours of the minor must be distinct from any credit hours used to fulfill any major the student is pursuing.

Code	Title	Hours
CSET 1100	Introduction to Computer Science and Engineering Technology	4
CSET 1200	Object Oriented Programming and Data Structures	3
CSET 2200	PC and Industrial Networks	4
CSET 4750	Computer Networks And Data Communication	4

CSET 4850	Computer and Network Security	4
EECS 4790	Network Security	4
<b>Total Hours</b>		<b>23</b>
<b>First Term</b>		
CSET 1100	Introduction to Computer Science and Engineering Technology	4
CSET 1200	Object Oriented Programming and Data Structures	3
<b>Hours</b>		<b>7</b>
<b>Second Term</b>		
CSET 2200	PC and Industrial Networks	4
<b>Hours</b>		<b>4</b>
<b>Third Term</b>		
CSET 4750	Computer Networks And Data Communication	4
<b>Hours</b>		<b>4</b>
<b>Fourth Term</b>		
CSET 4850	Computer and Network Security	4
EECS 4790	Network Security	4
<b>Hours</b>		<b>8</b>
<b>Total Hours</b>		<b>23</b>

- PLO 1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- PLO 2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- PLO 3. Communicate effectively in a variety of professional contexts.
- PLO 4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- PLO 5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

## Minor in Software Engineering

The College of Engineering offers several minors for students at The University of Toledo. These minors are recommended for students who want to enhance their academic programs with engineering-related course work and are intended to allow students to develop expertise in a discipline outside their majors. Students taking courses in these minors must meet course prerequisite requirements. Students should contact advisors in the College of Engineering for additional details about the course requirements of minors and contact advisors in their home college to determine how the minors will fit into their degree curriculum.

Note that per University of Toledo policy, minors cannot be declared by students in the same major as a given minor since at least 12 hours of the minor must be distinct from any credit hours used to fulfill any major the student is pursuing.

Code	Title	Hours
CSET 1100	Introduction to Computer Science and Engineering Technology	4

CSET 1200	Object Oriented Programming and Data Structures	3
CSET 3150	Introduction to Algorithms	4
CSET 3600	Software Engineering and Human Interfacing	4
CSET 4250	Applied Programming Languages	3

**Total Hours** **18**

#### First Year

**First Term** **Hours**

CSET 1100	Introduction to Computer Science and Engineering Technology	0-4
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**Hours** **0-4**

#### Second Term

CSET 1200	Object Oriented Programming and Data Structures	3
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**Hours** **3**

#### Third Year

**First Term**

CSET 3150	Introduction to Algorithms	4
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**Hours** **4**

#### Second Term

CSET 3600	Software Engineering and Human Interfacing	4
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**Hours** **4**

#### Fourth Year

**First Term**

CSET 4250	Applied Programming Languages	3
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**Hours** **3**

**Total Hours** **14-18**

- PLO 1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- PLO 2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- PLO 3. Communicate effectively in a variety of professional contexts.
- PLO 4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- PLO 5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

## Department of Mechanical, Industrial and Manufacturing Engineering

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### Department of Mechanical, Industrial and Manufacturing Engineering's guiding mission statement:

Excellence in undergraduate and graduate education and research with regional and national impact.

### Department of Mechanical, Industrial and Manufacturing Engineering vision:

To be a leading department in the State of Ohio with state and national ranking in the upper quartile, providing state-of-the-art education and research programs which prepare our graduates for leadership roles in a globally competitive environment.

## Degrees Offered

- BS in Mechanical Engineering (p. 273)
- Materials Science & Engineering, Certificate (p. 275)
- Minor in Mechatronics (p. 276)

### MIME 1000 Orientation To ME & IE

[0-3 credit hours]

The mechanical engineering profession is discussed with emphasis on career opportunities. Orientation to the university campus, study skills and time management. Word processing, spreadsheets, e-mail, design projects, and MATLAB programming are studied.

**Term Offered:** Summer, Fall

### MIME 1010 Professional Development

[1 credit hour]

Social protocol and ethics in industry are reviewed. Resume writing and interview skills are developed. Course assists in preparing the student for the co-op experience in industry.

**Prerequisites:** MIME 1000 with a minimum grade of D-

**Term Offered:** Spring, Summer

### MIME 1100 Introduction to CAD

[3 credit hours]

Techniques for visualization and representation of machine components using solid modeling and projection. Section views, orthographic projection, dimensioning and tolerancing. CAD techniques for solving vector problems.

**Term Offered:** Summer, Fall

### MIME 1650 Materials Science & Engineering

[0-3 credit hours]

Engineering properties of materials, the effect of atomic bonding and crystalline structure on the mechanical properties of metals, ceramics and polymers. Common measurement, testing and comparison techniques to aid in selection of materials. Laboratory experiences include compressive and tensile strength testing, the effects of heat upon strength, hardness and micro-structure, the effects of combining certain materials in a composite to improve overall mechanical properties.

**Prerequisites:** CHEM 1230 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 2000 Measurements Laboratory**

[0-2 credit hours]

How to write engineering laboratory reports. Statistical analysis of experimental data, uncertainty analysis, general characteristics of measurement systems, static and dynamic measurements, computer data acquisition, applications to thermal, mechanical and electrical systems.

**Prerequisites:** EECS 2340 with a minimum grade of D- and (ENGL 1930 with a minimum grade of D- or ENGL 2950 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**MIME 2300 Engineering Dynamics**

[3 credit hours]

Kinematics of particles and rigid bodies. Thorough study of kinetics of particles and rigid bodies using Newton's laws of motion, work-energy methods, and impulse and momentum methods.

**Prerequisites:** CIVE 1150 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 2600 Engineering Economics**

[3 credit hours]

The study of micro-economic and macro-economic theories. Methods of economic analysis, including the time value of money, are described. Economic decision criteria are used to select best alternatives with emphasis in engineering. Impact of economic decisions on various sectors of society are discussed.

**Term Offered:** Spring, Fall

**MIME 2650 Manufacturing Processes**

[0-3 credit hours]

Manufacturing processes discussed include metal casting and forming such as forging, rolling, extrusion, stamping and drawing. Metal cutting processes such as turning, boring, drilling, milling, sawing and broaching are discussed. Polymer processes including injection molding and extrusion as well as ceramic part production are covered. Laboratory experiences include creating parts using many of these processes.

**Prerequisites:** MIME 1650 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 2700 Applied Measure & Instrument**

[4 credit hours]

A hands on introduction to engineering measurement methods and instrumentation, including electrical circuits, sensors, actuators, data acquisition, and system response.

**Prerequisites:** PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 2920 Special Projects**

[1-3 credit hours]

A special project by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for students interested in mechanical, industrial or manufacturing engineering early in their undergraduate program. Instructor will specify scope of project to correspond to credit hours.

**Term Offered:** Spring, Summer, Fall

**MIME 2980 Special Topics**

[1-3 credit hours]

A special topic at the undergraduate level in Mechanical, Industrial or Manufacturing Engineering to be offered as a course during a term by a faculty member. Credits will correspond to regular class meetings of one lecture hour per week per credit hour.

**Term Offered:** Spring, Summer, Fall

**MIME 3200 Senior Design Projects I**

[3 credit hours]

Students work in teams using knowledge gained in earlier courses to solve real design, manufacturing, and operational problems relevant to industry. Oral and written communications as well as teamwork are stressed. Other topics include: product liability, safety, ethics, design for manufacturing, project planning and scheduling, engineering economics, and quality assurance/quality control.

**Term Offered:** Spring

**MIME 3300 Design And Analysis Of Mechanical Systems**

[3 credit hours]

Design and analysis of mechanisms, gear trains, planetary gear trains, cam-and-follower devices with application to mechanical systems.

Motion, force, torque and vibration analysis. Balancing of rotating and reciprocating components in machines.

**Prerequisites:** MIME 2300 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 3310 Mechanical Design I**

[3 credit hours]

Applications of mechanics of materials to analysis and design of mechanical components; introduction to fracture mechanics; applications of failure theories to design of machine elements subjected to static and cyclic loadings.

**Prerequisites:** (CIVE 1160 with a minimum grade of D- and MIME 1650 with a minimum grade of D-)

**Corequisites:** MIME 3330

**Term Offered:** Spring, Summer, Fall

**MIME 3320 Mechanical Design II**

[3 credit hours]

Application of failure theories in static and fatigue loading to the design and analysis of mechanical elements including fasteners, power screws, welded joints, springs, bearings, gears, clutches, brakes and shafts.

**Prerequisites:** MIME 3310 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**MIME 3330 Mechanics Laboratory**

[0-1 credit hours]

This laboratory course consists of experiments in strength of materials and stress analysis. Experiments include stress analysis of straight and curved beams, analysis of torsion and combined stresses in shafts, stress concentrations, and determination of mechanical properties from tension tests and fatigue tests.

**Corequisites:** MIME 3310

**Term Offered:** Spring, Summer, Fall

**MIME 3360 Vibration Laboratory**

[0-1 credit hours]

This laboratory course will be taken concurrently with Mechanical Vibration and consists of experiments to determine the natural frequency of one degree of freedom systems, free and forced vibrations of lumped parameter systems, mode shapes and natural frequencies of multidegree of freedom systems, and mode shapes and natural frequencies of torsional vibration systems.

**Corequisites:** MIME 3370**Term Offered:** Spring, Summer, Fall**MIME 3370 Mechanical Vibration**

[3 credit hours]

Modeling mechanical systems, mechanical elements, equations of motion for single-DOF and multi-DOF systems, linearization of equations of motion, free and forced response, electrical systems, frequency response, feedback control systems.

**Prerequisites:** MIME 2300 with a minimum grade of D- and MATH 3860 with a minimum grade of D- or MATH 2860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-

**Corequisites:** MIME 3360**Term Offered:** Spring, Summer, Fall**MIME 3380 Modeling and Control of Engineering Systems**

[3 credit hours]

Physical modeling and feedback principles are applied for control of mechanical systems. Transient response, root locus and frequency response principles are applied to the control of basic mechanical and electrical systems.

**Prerequisites:** MIME 3370 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MIME 3400 Thermodynamics I**

[3 credit hours]

Introduction to thermal sciences with an emphasis on the first and second law of thermodynamics. Topics include conservation of energy for closed and open systems, thermodynamic properties and cycles and entropy production.

**Prerequisites:** (MATH 3860 with a minimum grade of D- or MATH 2860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-) and PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**MIME 3410 Thermodynamics II**

[3 credit hours]

Review of open and closed systems in thermodynamics, the Carnot principle and cycle efficiency concepts. Application to gas and vapor power cycles and refrigeration cycles. Thermodynamic property relations, gaseous mixtures and combustion.

**Prerequisites:** MIME 3400 with a minimum grade of D-**Corequisites:** MIME 3420**Term Offered:** Spring, Summer, Fall**MIME 3420 Fluids Laboratory**

[0-1 credit hours]

This laboratory course is to be taken with Fluid Mechanics and Thermodynamics II to illustrate the concepts in those courses.

Experiments include fluid statics, forces on a submerged surface, center of pressure, manometers, surface tension, flow visualization, Bernoulli's equation, control volume analysis, viscous flow in pipes, flow over bodies, turbomachinery, and thermodynamic cycles.

**Prerequisites:** MIME 2700 with a minimum grade of D-**Corequisites:** MIME 3410, MIME 3430**Term Offered:** Spring, Summer, Fall**MIME 3430 Fluid Mechanics**

[3 credit hours]

Fluid mechanics for mechanical engineers. Topics include fluid statics and dynamics, equations of motion, dimensional analysis, boundary layer theory, flow in pipes, turbulence, fluid machinery, potential flow, CFD and aerodynamics.

**Prerequisites:** MIME 3400 with a minimum grade of D-**Corequisites:** MIME 3420**Term Offered:** Spring, Summer, Fall**MIME 3440 Heat Transfer**

[3 credit hours]

A comprehensive study of conduction, convection and radiation.

Derivation and solution of differential equations related to heat transfer. Analysis of forced and free convection and heat exchangers. Dimensional analysis related to heat transfer.

**Prerequisites:** MIME 3430 with a minimum grade of D-**Corequisites:** MIME 3450**Term Offered:** Spring, Summer, Fall**MIME 3450 Energy Laboratory**

[0-1 credit hours]

This laboratory course is to be taken with Heat Transfer to illustrate the concepts in this course. Experiments include Fourier's Law, cooling of fins/rods, determination of free and forced convection heat transfer coefficients, heat exchangers, Stefan Boltzmann Law, surface emission, surface reflection.

**Corequisites:** MIME 3440**Term Offered:** Spring, Summer, Fall**MIME 3780 Engineering Management**

[3 credit hours]

The development of the fundamentals required in an engineering and manufacturing environment where technical competency is considered standard and an appreciation of the human behavioral responses to managerial policies and rules is essential. This course covers the basics of planning organizing, leading and control from the subordinates' as well as the manager's perspective.

**Term Offered:** Fall**MIME 3940 Co-Op Experience**

[1 credit hour]

Students in the Industrial and Mechanical Engineering programs are to enroll in this course during each of their approved Co-Op experiences.

**Prerequisites:** MIME 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

**MIME 3950 Co-op Experience**

[1 credit hour]

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

**Prerequisites:** MIME 3940 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 4000 Engineering Statistics I**

[3 credit hours]

This course introduces the student to the areas of probability theory and statistical inferences. Topics include sample spaces, the concepts of random variables, probability distributions; functions of random variables, transformation of variables, moment generating functions, sampling and estimation theory; T, F and chi-square distribution.

**Prerequisites:** MATH 2850 with a minimum grade of D- or MATH 2950 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 4040 Modern Manufacturing Methods**

[3 credit hours]

This course provides an overview of the philosophy, design and management of production factories throughout the world. This course explores the evolution and revolution of manufacturing since the 1960's and the numerous philosophical changes that have shaped the factory of today. The course examines the fundamental design of the factory in an effort to meet the demands of customers, culture of the organization, competitive situation, and pressures of marketing and management.

**Term Offered:** Fall

**MIME 4060 Manufacturing Engineering**

[3 credit hours]

The course provides an overview of advanced manufacturing processes, manufacturing management, nano- and bio-manufacturing processes and their applications.

**Prerequisites:** MIME 2650 with a minimum grade of D- and MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4080 Operations Research I**

[3 credit hours]

This course focuses on the mathematical methods of Operations Research and their applications in engineering. Topics include the optimal solution of deterministic and stochastic mathematical models, modeling process, linear programming, the simplex method, duality theory and sensitivity analysis.

**Prerequisites:** MIME 4000 with a minimum grade of D- and MATH 2860 with a minimum grade of D-

**MIME 4100 Manufactur Systems Simulation**

[3 credit hours]

Discrete and continuous simulation models are used to study queuing, networks, manufacturing and related engineering systems. Simulation languages and animation are covered. Statistical inference is used to draw conclusions and to identify the best system.

**Prerequisites:** MIME 2650 with a minimum grade of D- and MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-

**Term Offered:** Spring

**MIME 4180 Legal Aspects of Engineering**

[3 credit hours]

This course offers an introduction to legal topics for engineers. Topics include: contracts, negligence, products liability, patents and copyright, employment law, criminal law, environmental law, and business law.

**Term Offered:** Spring, Fall

**MIME 4200 Senior Design Projects II**

[3 credit hours]

Students continue to work in teams using knowledge gained in earlier courses to solve real design, manufacturing and operational problems relevant to industry. Oral and written communications with participating companies as well as teamwork are stressed. Other topics include project planning and scheduling, patents, product liability, safety, ethics and design for manufacturing.

**Prerequisites:** (MIME 3200 with a minimum grade of D- and MIME 3320 (may be taken concurrently) with a minimum grade of D- and MIME 3440 (may be taken concurrently) with a minimum grade of D-)

**Term Offered:** Fall

**MIME 4220 Assembly And Joining Processes**

[3 credit hours]

This course is comprised of two parts: joining processes and assembly systems. Commonly used joining methods, such as welding, mechanical fastening and adhesion are discussed. General principles of assembly are presented with extensive use of automobile assembly as an example.

**Term Offered:** Spring

**MIME 4230 Dynamics Of Human Movement**

[3 credit hours]

The goal of this course is for students to be able to describe motions of the human body. Three-dimensional analysis and measurements of human body movements including kinematics, kinetics and energetics of human gait, anthropometry and application to bioengineering and orthopedics will be presented. Euler angles and the screw axis method will be used to describe three-dimensional motions.

**Prerequisites:** MIME 2300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4240 Experimental Methods in Orthopedic Biomechanics**

[3 credit hours]

Experimental techniques used in orthopedics and in the study of the musculoskeletal system including mechanical testing, experimental and analytical methods for stress analysis, strain gauges, methods used in human motion analysis to include motion capture, force plates and EMG.

**Prerequisites:** MIME 1650 with a minimum grade of D- and CIVE 1160 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4280 Cad-Finite Element Methods**

[3 credit hours]

An introduction to the basic concepts of the finite element method. Topics include engineering analysis of continuous systems, numerical solutions of boundary value problems, method of weighted residuals and the principle of minimum potential energy, applications of commercially available finite element programs.

**Prerequisites:** MIME 3320 with a minimum grade of D-

**Term Offered:** Summer, Fall

**MIME 4300 Advanced Mechanics Of Materials**

[3 credit hours]

Theory of elasticity, plane stress and plane problems, yield criteria and failure theories, bending of beams, energy methods, curved flexural members, unsymmetric bending, torsion, shear center and axisymmetrically loaded members.

**Prerequisites:** CIVE 1160 with a minimum grade of D- and MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4310 Mechanics Of Composite Materials**

[3 credit hours]

Review of elasticity of anisotropic solids, determination of mechanical properties of fiber-reinforced lamina, analysis and performance of laminated composites.

**Prerequisites:** (CIVE 1160 with a minimum grade of D- and MIME 1650 with a minimum grade of D-)

**Term Offered:** Spring

**MIME 4320 Fatigue Of Materials & Structures**

[3 credit hours]

Fatigue design methods; fatigue fracture mechanisms; cyclic deformation behavior and material cyclic properties; stress-based, and fracture mechanics-based methodologies to fatigue life prediction of smooth and notched members subjected to constant or variable amplitude loadings.

**Prerequisites:** CIVE 1160 with a minimum grade of D-

**Term Offered:** Spring

**MIME 4350 Advanced Ceramics**

[3 credit hours]

This course provides greater knowledge on the atomic bonding, crystal structure, crystal imperfections, phases and interfaces, microstructures, phase diagrams, phase transformation, transport and diffusion, metal deformation, fracture of materials, deterioration of materials, electronic and physical properties of ceramics.

**Prerequisites:** MIME 1650 with a minimum grade of C- and PHYS 2130 with a minimum grade of C- and PHYS 2135 with a minimum grade of C-

**Term Offered:** Spring, Fall

**MIME 4370 Advanced Materials for Automotive Structures**

[3 credit hours]

An in#depth study of the broad range of engineering materials used in the construction of motor vehicles. Inter#relations between materials microstructure, components manufacturing process and components service behavior.

**Prerequisites:** (MIME 1650 with a minimum grade of C- and PHYS 2130 with a minimum grade of C- and PHYS 2135 with a minimum grade of C-)

**Term Offered:** Spring, Fall

**MIME 4380 Engineering Polymers and Rubbers**

[3 credit hours]

Polymers and rubber are introduced through lecture and lab components at three levels- 1) synthesis and characterization, 2) thermal, molecular and mechanical properties, and 3) design considerations for engineering applications.

**Prerequisites:** (MIME 1650 with a minimum grade of C- and PHYS 2130 with a minimum grade of C- and PHYS 2135 with a minimum grade of C-)

**Term Offered:** Spring, Fall

**MIME 4390 Failure Analysis of Materials**

[3 credit hours]

The failure analysis is a procedure to determine the physical cause of the failure of an element, component or industrial equipment. The course will be focused on material related and will present an introduction to the principles of failure analysis and the fundamental aspects to conduct a failure analysis investigation. A key component of the course is the discussion of real cases of failures (case studies), i.e. failures in mining machinery, chemical processing equipment, energy production, systems, aircraft and petrochemical industry components. This course provides the connection between mechanisms that are responsible for material failures and will address the characterization techniques used in failure analysis. Fundamental failure mechanisms in various materials applications including fracture of metals and alloys, failure in electronic devices, and environmental factor induced failures will be covered. Each categorized phenomenon will be approached by historical events to reveal the application and connection between the mechanism and the incidents.

**Prerequisites:** (MIME 1650 with a minimum grade of C- and PHYS 2130 with a minimum grade of C- and PHYS 2135 with a minimum grade of C-)

**Term Offered:** Spring, Fall

**MIME 4410 Alternative Energy**

[3 credit hours]

This course focuses on the technical aspects of sustainable energy technologies, such as wind, solar, biomass, ocean waves/tides, geothermal, and hydropower; it also covers issues and applications related to storage, transportation, distribution, industrial usage, and buildings. The course investigates the progress, challenges, and opportunities of each technology to be both technically feasible and economically viable.

**MIME 4430 Automotive Control Systems**

[3 credit hours]

This course covers the major aspects of automotive control, including engine, driveline, and complete vehicle control. This includes applications such as fuel and ignition control, ABS systems, gear-shifting, and vehicle velocity estimation.

**Prerequisites:** MIME 3380 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4440 Mechatronics**

[3 credit hours]

This course will give students hands-on experience with mechatronic systems and components. The laboratory will be used to demonstrate several mechatronics systems including inverted pendulums, suites of sensors and motors, and other more complex systems. A major part of the course will be a semester-long project where the students conceive, design, and build a mechatronic device.

**Prerequisites:** MIME 3380 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4450 Automation Design**

[3 credit hours]

This course will introduce the range of common components used in automation, including actuators, sensors, motors, linear guides, energy chain, industrial robots and light curtains. Students will practice (with feedback) walking through the design process in specifying, sizing, laying out and integrating these components.

**Prerequisites:** MIME 1100 with a minimum grade of D- and MIME 2300 with a minimum grade of D- and CIVE 1160 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4460 MATLAB for Engineers**

[3 credit hours]

This course will review the basics of using MATLAB, identify best-practices applicable to MATLAB and other programming languages, and provide examples of more-advanced functionality such as image processing, Simulink control of mechatronic systems, numerically solving differential equations, GPU computation, and optimization. Programming experience would be helpful, but this would also be a good opportunity to rapidly grow programming skills with an easy-to-learn language.

**Prerequisites:** MATH 2860 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4510 Turbomachinery**

[3 credit hours]

Theory of energy transfer between fluid and rotor in turbomachines. Design of turbomachine components. Applications to pumps, compressors and turbines.

**Prerequisites:** (MIME 3410 with a minimum grade of D- and MIME 3430 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

**MIME 4520 Heating, Ventilating And Air Conditioning**

[3 credit hours]

Control of the thermal environment within enclosed spaces including psychrometric properties of air heating and cooling, loads and factors affecting human comfort. Analysis of basic heating and refrigeration systems, heat pumps, heaters, utilization of solar energy, humidifiers, energy conservation and controls for systems.

**Prerequisites:** MIME 3410 with a minimum grade of D-

**Term Offered:** Fall

**MIME 4530 Internal Combustion Engines**

[3 credit hours]

Study of Carnot, Otto, Diesel and Brayton Cycles, performance characteristics, combustion engines and construction details of internal combustion engines. Analysis of problems associated with carburetion, fuel injection, combustion, cooling, supercharging, emissions and emission control.

**Prerequisites:** MIME 3410 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4540 Jet Propulsion**

[3 credit hours]

Mechanics and thermodynamics of jet propulsion. Fundamentals of high-speed flow. Analysis of gas turbine engine components: diffuser, compressor, turbine and nozzle. Investigation of characteristics of ramjets, turbojets, turbofans and turboprops. Introduction to solid and liquid rockets.

**Prerequisites:** MIME 3410 with a minimum grade of D-

**Term Offered:** Summer, Fall

**MIME 4550 Aerodynamics**

[3 credit hours]

Fundamentals of aerodynamics, potential flow theory, aerodynamic forces and moments, introduction to numerical analysis, application to internal flows, theory of lift for infinite and finite wings, induced drag.

**Prerequisites:** MIME 3430 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4560 Gas Dynamics**

[3 credit hours]

Analysis of compressible flow phenomena including shock and detonation waves. Internal flow with friction and heat addition. Analysis and application to supersonic airfoil theory, inlet nacelles, nozzles to generate supersonic thrust and jet engine combustors.

**Prerequisites:** MIME 3430 with a minimum grade of D-

**Term Offered:** Spring

**MIME 4690 Reliability**

[3 credit hours]

Reliability of components and multicomponent systems. Static and dynamic reliability models for both independent and dependent failures. Effects of redundancy. Reliability testing consideration.

**Term Offered:** Spring, Summer, Fall

**MIME 4820 Sustainability Analysis and Design**

[3 credit hours]

The course is intended to introduce students to sustainability analysis and design in manufacturing and service settings as related to mechanical and industrial engineering. It will cover solid waste minimization for manufacturers, life cycle analysis, and environmentally conscious design.

**Term Offered:** Spring, Fall

**MIME 4830 Additive Manufacturing**

[3 credit hours]

Additive manufacturing (AM) is a method of manufacturing that has been growing rapidly. In this course the students will learn about various AM technologies. They will also work with the required design software packages to create 3D models and 3D-print objects from the designed models.

**Prerequisites:** MIME 2650 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 4920 Special Projects**

[1-3 credit hours]

A special project by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for students interested in mechanical, industrial or manufacturing engineering nearing completion of their undergraduate degree. Instructor will specify scope of project to correspond to credit hours.

**Term Offered:** Spring, Summer, Fall

**MIME 4980 Special Topics**

[1-3 credit hours]

A special topic at the undergraduate level in Mechanical, Industrial or Manufacturing Engineering to be offered as a course during a term by a faculty member. This is intended for students nearing graduation. Credits will correspond to regular class meeting of one lecture hour per week per credit hour.

**Term Offered:** Spring, Summer, Fall



## BS in Mechanical Engineering

Below is a sample plan of study for a BS in Mechanical Engineering. Consult your degree audit for your program requirements.

- BS Mechanical Engineering with no concentration (general) (p. 273)
- BS Mechanical Engineering - Aerospace Engineering Concentration (p. 273)
- BS Mechanical Engineering - Mechatronics Concentration (p. 274)

### BS in Mechanical Engineering with no concentration (general)

First Term		Hours
MATH 1850	Single Variable Calculus I	4
ENGL 1110	College Composition I	3
CHEM 1230	General Chemistry I	4
MIME 1000	Orientation To ME & IE	3
MIME 1100	Introduction to CAD	3
<b>Hours</b>		<b>17</b>
Second Term		Hours
MATH 1860	Single Variable Calculus II	4
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
MIME 1010	Professional Development	1
Select one of the following:		3
ECON 1010	Introduction To Economic Issues	
ECON 1150	Principles Of Macroeconomics	
ECON 1200	Principles Of Microeconomics	
ENGL 2950	Technical Writing	3
<b>Hours</b>		<b>16</b>
Third Term		Hours
MATH 2850	Elementary Multivariable Calculus	4
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
MIME 1650	Materials Science & Engineering	3
CIVE 1150	Engineering Mechanics: Statics	3
Arts/Humanities Core		3
<b>Hours</b>		<b>18</b>
Fourth Term		Hours
MATH 2860	Elementary Differential Equations	3
MIME 2650	Manufacturing Processes	3
MIME 4000	Engineering Statistics I	3
MIME 2700	Applied Measure & Instrument	4
CIVE 1160	Engineering Mechanics: Strength Of Materials	3
<b>Hours</b>		<b>16</b>

Fifth Term		Hours
MIME 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
Sixth Term		Hours
MIME 2300	Engineering Dynamics	3
MIME 3300	Design And Analysis Of Mechanical Systems	3
MIME 3310	Mechanical Design I	3
MIME 3330	Mechanics Laboratory	1
MIME 3400	Thermodynamics I	3
<b>Hours</b>		<b>13</b>
Seventh Term		Hours
MIME 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
Eighth Term		Hours
MIME 3320	Mechanical Design II	3
MIME 3360	Vibration Laboratory	1
MIME 3370	Mechanical Vibration	3
MIME 3410	Thermodynamics II	3
MIME 3420	Fluids Laboratory	1
MIME 3430	Fluid Mechanics	3
Diversity of US		3
<b>Hours</b>		<b>17</b>
Ninth Term		Hours
MIME 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
Tenth Term		Hours
MIME 3200	Senior Design Projects I	3
MIME 3380	Modeling and Control of Engineering Systems	3
MIME 3440	Heat Transfer	3
MIME 3450	Energy Laboratory	1
Technical Elective		3
Technical Elective		3
<b>Hours</b>		<b>16</b>
Eleventh Term		Hours
MIME 4200	Senior Design Projects II	3
Technical Elective		3
Technical Elective		3
Arts/Humanities Core/Non-US Diversity		3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>131</b>

### BS Mechanical Engineering - Aerospace Engineering Concentration

Code	Title	Hours
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4

MATH 2850	Elementary Multivariable Calculus	4
MATH 2860	Elementary Differential Equations	3
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
CHEM 1230	General Chemistry I	4
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
MIME 1000	Orientation To ME & IE	3
MIME 1010	Professional Development	1
MIME 1100	Introduction to CAD	3
MIME 1650	Materials Science & Engineering	3
CIVE 1150	Engineering Mechanics: Statics	3
CIVE 1160	Engineering Mechanics: Strength Of Materials	3
MIME 2300	Engineering Dynamics	3
MIME 2650	Manufacturing Processes	3
MIME 2700	Applied Measure & Instrument	4
MIME 3200	Senior Design Projects I	3
MIME 3300	Design And Analysis Of Mechanical Systems	3
MIME 3310	Mechanical Design I	3
MIME 3320	Mechanical Design II	3
MIME 3330	Mechanics Laboratory	1
MIME 3360	Vibration Laboratory	1
MIME 3370	Mechanical Vibration	3
MIME 3380	Modeling and Control of Engineering Systems	3
MIME 3400	Thermodynamics I	3
MIME 3410	Thermodynamics II	3
MIME 3420	Fluids Laboratory	1
MIME 3430	Fluid Mechanics	3
MIME 3440	Heat Transfer	3
MIME 3450	Energy Laboratory	1
MIME 4000	Engineering Statistics I	3
MIME 4200	Senior Design Projects II	3
12 credit hours of approved technical electives		
Satisfy all University of Toledo core curriculum requirements		

The BSME degree includes as a requirement 12 credit hours of technical elective courses. The BSME degree with concentration in Aerospace Engineering requires that the 12 credit hours of elective courses are chosen as follows: six credit hours in Fluid Mechanics and Aerothermodynamics and six credit hours in Materials, Design, and Manufacturing.

**List of courses in Fluid Mechanics and Aerothermodynamics (choose two):**

Code	Title	Hours
MIME 4550	Aerodynamics	3
MIME 4510	Turbomachinery	3

MIME 4540	Jet Propulsion	3
MIME 4560	Gas Dynamics	3

**List of courses in Materials, Design, and Manufacturing (choose two):**

Code	Title	Hours
MIME 4060	Manufacturing Engineering	3
MIME 4280	Cad-Finite Element Methods	3
MIME 4300	Advanced Mechanics Of Materials	3
MIME 4320	Fatigue Of Materials & Structures	3
MIME 4830	Additive Manufacturing	3

## BS in Mechanical Engineering with a Mechatronics Concentration

Below is a sample plan of study with a concentration in Mechatronics. Consult your degree audit for your program requirements.

First Term		Hours
MATH 1850	Single Variable Calculus I	4
ENGL 1110	College Composition I	3
CHEM 1230	General Chemistry I	4
MIME 1000	Orientation To ME & IE	3
MIME 1100	Introduction to CAD	3
<b>Hours</b>		<b>17</b>
Second Term		Hours
MATH 1860	Single Variable Calculus II	4
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
MIME 1010	Professional Development	1
Select one of the following:		3
ECON 1010	Introduction To Economic Issues	
ECON 1150	Principles Of Macroeconomics	
ECON 1200	Principles Of Microeconomics	
ENGL 2950	Technical Writing	3
<b>Hours</b>		<b>16</b>
Third Term		Hours
MATH 2850	Elementary Multivariable Calculus	4
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
MIME 1650	Materials Science & Engineering	3
CIVE 1150	Engineering Mechanics: Statics	3
Arts/Humanities Core		3
<b>Hours</b>		<b>18</b>
Fourth Term		Hours
MATH 2860	Elementary Differential Equations	3
MIME 2650	Manufacturing Processes	3

MIME 4000	Engineering Statistics I	3
CIVE 1160	Engineering Mechanics: Strength Of Materials	3
MIME 2700	Applied Measure & Instrument	4
<b>Hours</b>		<b>16</b>
<b>Fifth Term</b>		
MIME 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
<b>Sixth Term</b>		
MIME 2300	Engineering Dynamics	3
MIME 3300	Design And Analysis Of Mechanical Systems	3
MIME 3310	Mechanical Design I	3
MIME 3330	Mechanics Laboratory	1
MIME 3400	Thermodynamics I	3
<b>Hours</b>		<b>13</b>
<b>Seventh Term</b>		
MIME 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
<b>Eighth Term</b>		
MIME 3320	Mechanical Design II	3
MIME 3360	Vibration Laboratory	1
MIME 3370	Mechanical Vibration	3
MIME 3410	Thermodynamics II	3
MIME 3420	Fluids Laboratory	1
MIME 3430	Fluid Mechanics	3
Diversity of US		3
<b>Hours</b>		<b>17</b>
<b>Ninth Term</b>		
MIME 3940	Co-Op Experience	1
<b>Hours</b>		<b>1</b>
<b>Tenth Term</b>		
MIME 3200	Senior Design Projects I	3
MIME 3380	Modeling and Control of Engineering Systems	3
MIME 3440	Heat Transfer	3
MIME 3450	Energy Laboratory	1
MIME 4460	MATLAB for Engineers	3
Technical Elective		3
<b>Hours</b>		<b>16</b>
<b>Eleventh Term</b>		
MIME 4200	Senior Design Projects II	3
MIME 4430 or MIME 4450	Automotive Control Systems or Automation Design	3
MIME 4440	Mechatronics	3
Arts/Humanities Core/Non-US Diversity		3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>131</b>

- PLO 1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- PLO 2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- PLO 3. an ability to communicate effectively with a range of audiences
- PLO 4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- PLO 5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- PLO 6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- PLO 7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## Materials Science & Engineering, Certificate

The College of Engineering offers several minors for students at The University of Toledo. These minors are recommended for students who want to enhance their academic programs with engineering-related course work and are intended to allow students to develop expertise in a discipline outside their majors. Students taking courses in these minors must meet course prerequisite requirements. Students should contact advisors in the College of Engineering for additional details about the course requirements of minors and contact advisors in their home college to determine how the minors will fit into their degree curriculum.

Note that per University of Toledo policy, minors cannot be declared by students in the same major as a given minor since at least 12 hours of the minor must be distinct from any credit hours used to fulfill any major the student is pursuing.

Code	Title	Hours
To obtain this certificate, the students will have to complete 12 credit hours with the following four courses.		
MIME 4350	Advanced Ceramics	3
MIME 4370	Advanced Materials for Automotive Structures	3
MIME 4380	Engineering Polymers and Rubbers	3
MIME 4390	Failure Analysis of Materials	3
<b>Total Hours</b>		<b>12</b>

- PLO 1. an ability to identify, formulate, and solve complex engineering problems by applying the properties of materials.
- PLO 2. an ability to apply engineering design and produce different devices that meet specified needs based on different materials.
- PLO 3. an ability to recognize ethical and professional responsibilities in materials science and engineering related to engineering manufacturing.

- PLO 4. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions related to materials science and engineering.
- PLO 5. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## Minor in Mechatronics

The College of Engineering offers several minors for students at The University of Toledo. These minors are recommended for students who want to enhance their academic programs with engineering-related course work and are intended to allow students to develop expertise in a discipline outside their majors. Students taking courses in these minors must meet course prerequisite requirements. Students should contact advisors in the College of Engineering for additional details about the course requirements of minors and contact advisors in their home college to determine how the minors will fit into their degree curriculum.

Note that per University of Toledo policy, minors cannot be declared by students in the same major as a given minor since at least 12 hours of the minor must be distinct from any credit hours used to fulfill any major the student is pursuing.

Code	Title	Hours
MIME 3300	Design And Analysis Of Mechanical Systems	3
MIME 3380	Modeling and Control of Engineering Systems	3
MIME 4460	MATLAB for Engineers	3
MIME 4430	Automotive Control Systems	3
MIME 4440	Mechatronics	3
<b>Total Hours</b>		<b>15</b>

## Special Programs for Undergraduates

We offer an number of special programs to allow our students to extend their education beyond their Bachelor of Science in Engineering or Bachelor of Science in Engineering Technology degree programs:

- Early Admission to Master of Science in Engineering (p. 276)
- Joint B.S. in Engineering or Engineering Technology/M.B.A. Program (p. 276)
- Minor in Business Administration (p. 277)
- Presumptive Admission Program to the University of Toledo College of Law (p. 277)

## Early Admission to Master of Science in Engineering

The College of Engineering offers students currently enrolled in a Bachelor of Science in Engineering degree program at The University of Toledo an opportunity to begin work toward a Master of Science in Engineering degree. This option offers talented students who intend to continue their education beyond the B.S. a unique opportunity to begin their graduate research activities at an earlier stage in their career and proceed into the graduate programs in a timely manner.

Up to nine semester credit hours of graduate-level technical elective or required courses may be applied toward the B.S. degree in lieu of selected

undergraduate elective courses, subject to specific departmental restrictions. Only 5000-level or higher engineering courses taken at The University of Toledo may be applied toward this option. In addition, an approved M.S. plan of study must be filed indicating those courses that will be accepted in lieu of specific B.S. course requirements. Application and admission requirements are described in the graduate section of the catalog.

Normally, the Bachelor of Science in Engineering degree programs (with co-op) require five years and the Master of Science in Engineering degree programs require an additional two years. It is anticipated that by participating in this option, a total of six years will be required for the completion of both degrees.

## Joint B.S. in Engineering or Engineering Technology/M.B.A. Program

The College of Business and Innovation, in conjunction with the College of Engineering, offers a program whereby a student may earn a Bachelor of Science in Engineering or Engineering Technology and a Master of Business Administration (M.B.A.). This program provides a unique opportunity to combine business and engineering skills to prepare graduates for global competitiveness and supports the mission to prepare corporate leaders for the future. The program should be particularly attractive to students who want to start their own company or who simply want to develop an appreciation for how engineering and business complement each other.

This program will allow engineering students in their final two semesters of study to begin taking M.B.A. courses while completing their B.S. degree program. Students with senior standing may be formally admitted into the M.B.A. program and can complete the M.B.A. at the end of six years of study. The business undergraduate prerequisites can be satisfied as part of the undergraduate curriculum.

To be admitted to the program, students must have senior standing, score a minimum of 450 on the Graduate Management Admissions Test (GMAT) and have at least a 3.0 cumulative GPA. Students also must have completed the requirements for the business minor. The business minor courses should be chosen carefully however, as not all business minor courses can be used towards the M.B.A. The six business courses listed in the business minor section plus MIME 2600 or ECON 1150 and ECON 1200 satisfy the basic core prerequisite requirement for the M.B.A. program for engineering students.

Students who wish to pursue the program should inform the associate dean of undergraduate studies in the College of Engineering during their junior year and complete the GMAT by the end of their junior year. Students should submit completed application materials to the Graduate School for admission to the M.B.A. program before the fall semester of their senior year.

Upon admission to the program by the Graduate School and the College of Business and Innovation, students will be classified as special provisional graduate students so that they may take graduate courses while completing the Bachelor of Science degree requirements. Students' special status must be tracked by the M.B.A. office to assure AACSB

compliance. Also, the Bachelor of Science in Engineering or Engineering Technology must be granted in a semester prior to graduating with the M.B.A.

To satisfy the requirements for the M.B.A., students must complete all of the core and elective required courses in the M.B.A. program. By choosing the correct courses, this may be accomplished with six undergraduate and eleven graduate-level business courses.

Normally, the Bachelor of Science in Engineering degree programs (with co-op) require five years, and the M.B.A. would require an additional two years. It is anticipated that by enrolling in the two programs simultaneously, a total of six years will be required for completion of both degrees. Similarly, for Engineering Technology students, the degree program normally requires four years, and the M.B.A. program would require an additional two years. It is anticipated that by enrolling in the two programs simultaneously, a total of five and one half years will be required for completion of both degrees.

## Minor in Business Administration

Engineering students may earn a General Minor in Business for Non-Business Students. This link provides additional information:

### GENERAL MINOR FOR NON-BUSINESS STUDENTS (p. 559)

Students interested in a business minor should consult advisors in the College of Business and Innovation and the College of Engineering.

## Presumptive Admission Program to the University of Toledo College of Law

Through the UT Advantage program, students who graduate with a Bachelor of Science degree from the College of Engineering, have a minimum GPA of 3.4, have an LSAT score at or above the 50th percentile for the previous year's entering class at Toledo Law, and have not committed an act or acts reflecting unsatisfactory character and fitness (e.g., a felony, an academic suspension) will be presumptively admitted to The University of Toledo College of Law upon submission of a completed application.

## Faculty

### DEPARTMENT OF BIOENGINEERING

**Halim Ayan**, 2012, Associate Professor and Graduate Program Director, B.S., Ege University; Ph.D., Drexel University

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**Hongyan Zhang**, 2000, Professor, B.S., Jilin University; M.S., Institute of Metal Research, Chinese Academy of Sciences; Ph.D., The Ohio State University

# College of Health and Human Services

## Undergraduate Catalog 2024-2025

Health and Human Services Building Room 3302  
419.530.5453  
CHHSDean@utoledo.edu

### Mission:

The University of Toledo's College of Health and Human Services, an innovative college housed within a national public research university, prepares engaged professionals who improve the human condition in the region and the world.

### Vision:

The College of Health and Human Services will deliver nationally recognized academic programs committed to discovery, teaching, professional practice and service that directly improve human lives.

## College Statement of Diversity and Inclusion:

In concert with the University of Toledo's values and expectations, the faculty and staff within the College of Health and Human Services uphold the tenets pledged by the University to respect and value personal uniqueness and differences. Specifically, we will actively participate in the initiatives of the University to attract and retain diverse students, faculty, and staff; to challenge stereotypes; and to promote sensitivity toward diversity and foster an environment of inclusion in all curricular and extra-curricular activities. Hence, the college values and encourages its faculty, staff and students to:

- Be considerate of the thoughts and ideas of others
- Demonstrate accountability, integrity and honor in all course-related activities
- Promote a collaborative and supportive educational environment
- Treat every individual with kindness, dignity, and respect regardless of:
  - Gender
  - Race/Ethnicity
  - Religion
  - Sexual Orientation, Gender Identity, Gender Expression
  - Impairment(s)/Disability(ies)
  - Political Views
  - Social Class/Socioeconomic Status
  - Linguistic Diversity
  - Nationality/Country of Origin
  - Other Element(s) of Uniqueness

## Contacts

### Administration

Mark Merrick, Dean

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## Academic Departments

### Department of Exercise & Rehabilitation Sciences

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### Department of Human Services

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### Department of Population Health

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## Student Services

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## Degrees/Programs Offered

### Department of Exercise & Rehabilitation Sciences (p. 284)

- BA in Health Sciences (p. 294)
- BS in Health Sciences (p. 298)
- BS in Recreation Therapy (p. 306)
- BS in Respiratory Care (p. 308)
- BS in Speech-Language Pathology (p. 311)
- Minor in Health Sciences (<https://catalog.utoledo.edu/undergraduate/health-human-services/population-health/minor-health-sciences/>)

### Department of Human Services

- Associate of Applied Science in Legal and Paralegal Studies (p. 319)
- BS in Criminal Justice (p. 320)
- BS in Legal and Paralegal Studies (p. 322)
- BSW in Social Work (p. 323)
- Certificate in Chemical Dependency Counseling (p. 324)
- Certificate in Nurse Paralegal (p. 325)
- Post Baccalaureate Certificate in Legal and Paralegal Studies (p. 327)
- Minor in Counseling (p. 326)
- Minor in Criminal Justice (p. 326)
- Minor in Data Science (p. 325)
- Minor in Forensic Science Investigation (p. 326)
- Minor in Legal Specialties (p. 327)

### Department of Population Health (p. 328)

- BS in Healthcare Administration (p. 332)
- BS in Health Information Administration (p. 334)
- BA in Health Sciences (p. 294)
- BS in Health Sciences (p. 298)
- BS in Public Health (p. 348)
- Minor in Health Sciences (<https://catalog.utoledo.edu/undergraduate/health-human-services/population-health/minor-health-sciences/>)
- Minor in Public Health (p. 351)

## Admission Policies

### Requirements for Direct-From-High-School Students

For undecided students or students majoring in Criminal Justice, Legal and Paralegal Studies, Recreation Therapy and Social Work; OR students pursuing a Nurse Paralegal Certificate, Post Baccalaureate Certificate in Legal and Paralegal Studies or an Associate's degree in Legal and Paralegal Studies

- Minimum GPA if applying without test scores: 2.5
- Minimum GPA and test scores if applying with test scores: 2.0-2.49 GPA and a 19 ACT or 990 SAT score

#### For students in all other majors

- Minimum GPA if applying without test scores: 2.7
- Minimum GPA and test scores if applying with test scores: 2.0-2.69 GPA and a 21 ACT or 1060 SAT score

Students not qualifying for admission to the College of Health and Human Services will be admitted through the Exploratory Studies program in University College.

### Selective/Limited Admission

The following programs require an additional application for admission to their professional programs:

- Public health
- Recreation therapy
- Respiratory care
- Social work

### Requirements for Students with an Associate's Degree

Students holding associate's degrees from accredited colleges are encouraged to enroll in the College. Students may earn a bachelor's degree upon completion of two or more additional years of full-time study; see the advisor in the major to determine a plan of study. The following regulations apply:

1. Students must complete the equivalent of the specified University core.
2. In all baccalaureate programs, a minimum of 60 hours must be taken at the 2000 to 4000 levels; of these a minimum of 30 hours must be taken at the 3000 and 4000 levels. Coursework from other institutions is accepted at the level at which the course was taught at that institution.

### Admission with Transfer Credit/Change of College

Students with satisfactory academic records wishing to transfer into the College of Health and Human Services must meet the minimum entrance requirements of The University of Toledo. After submission of official transcripts from all colleges/universities attended and acceptance by the

College, transfer courses are evaluated. The evaluation process should be completed before the first term of attendance to avoid duplication of credit.

Students in good standing who wish to change from another college within The University of Toledo to the College of Health and Human Services should make an appointment with a college advisor in the Office of Student Services to discuss the transfer and have academic records reviewed. All program requirements, including University core, must be fulfilled as specified in the catalog for the year in which the student enters the College. All undergraduate hours attempted and earned at The University of Toledo, as well as the GPA, will transfer.

**Health Science Majors:** minimum 12 hours of earned college-level credit and 2.7 cumulative GPA to transfer

**Criminal Justice, Legal and Paralegal Studies, Recreation Therapy and Social Work majors:** 2.2 cumulative GPA if 12-29 hours of earned college-level credit; 2.4 cumulative GPA if 30-59 hours; and 2.5 cumulative GPA if 60+ hours

## Readmission of Former Students

Undergraduate students who discontinue course work for a period of at least one academic year (not including summer) must request readmission to the University. If students have taken any course work at another institution during the time they have been away from the University (other than transient status), they must complete a new application in the Office of Undergraduate Admission and meet transfer admission requirements.

Students who have not taken course work for more than 12 months must comply with the college requirements at the time of readmission.

## Honors Program

The Honors Program in the College of Health and Human Services provides opportunities for challenging and individualized study for undergraduate students of unusually high ability, motivation and initiative. For admission requirements, see the Jesup Scott Honors College section of this catalog.

## Academic Policies

Refer to **The University of Toledo Policy website** (<https://www.utoledo.edu/policies/>) for academic policies that apply to all students.

The College of Health and Human Services adheres to all UToledo policies and procedures. Please refer to the General Section (<https://catalog.utoledo.edu/general-section/>) of this catalog for academic policies governing all students enrolled at the University. In any case where University, college, departmental and/or program policies conflict, the most stringent policy applies. Students should consult with their program for a complete list of all policies and procedures specifically related to their program.

## Academic Grievance

Students have the responsibility and right to call to the attention of a professor any course grade believed to be in error. The college grievance

procedure must be initiated within 60 days of the posting of the final grade. Academic grievances must follow the procedure described below:

- The student meets with the professor to attempt to resolve the problem.
- If meeting with the professor does not resolve the problem, the student must discuss the problem with the department chair of the faculty member who issued the grade. The chair attempts to resolve the problem, but may not unilaterally change the grade.
- If meeting with the chair does not resolve the issue, the student will forward the appeal to the associate dean of the College of Health and Human Services.
- The college's Petition for Academic Grievance (<https://www.utoledo.edu/hhs/resources-facstaff/pdfs/CHHS%20-%20Petition%20for%20Academic%20Grievance%201.7.pdf>) should be used for this purpose. The student must state the reasons for the appeal and the desired outcome. The student must meet with the associate dean to review and discuss the problem. The associate dean will attempt to resolve the problem by meeting with the appropriate faculty member, but may not unilaterally change the grade.
- If the student wishes to continue the appeal, he/she must forward the appropriate information relative to the problem to the Student Grievance Council. Information on this process may be found on the Academic Grievance (<https://www.utoledo.edu/offices/provost/academicgrievance/undergraduate.html>) website. Note: If the grievance occurs during the fall or summer semester, a grievance petition must be filed with the chair of the Student Grievance Council no later than the last day of classes in the next semester. If the grievance occurs during the spring semester, the grievance petition must be filed with the chair of the Student Grievance Council no later than the last day of classes in the final summer session.

## Academic Honesty

Refer to the UToledo Policy website (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-04%20%20Academic%20dishonesty.pdf>) for further information on Academic Honesty.

## Academic Standing

### Academic Alert

Students with less than 30 UToledo GPA hours and with less than a 2.0 UToledo cumulative GPA will receive an Academic Alert. An Academic Alert serves as an early alert to below-average academic performance. Students who receive an Academic Alert are required to enroll in a University-sponsored academic recovery program the following semester. The program is designed to provide students with the skills and support necessary to improve academically.

### Academic Warning

Students will be placed on Academic Warning when their cumulative GPA has dropped below 2.0, and they have 30 or more UToledo GPA cumulative semester hours. In successive semesters, students with a cumulative UToledo GPA below 2.0 will remain on Academic Warning. Students will be removed from Academic Warning when their cumulative UToledo GPA is 2.0 or greater. A student on Academic Warning is required to fulfill requirements to remain eligible for registration. These requirements include, but are not limited to, participation in a University-

sponsored academic recovery program, regular attendance in courses, utilizing University tutoring and/or other student success initiatives.

## Academic Suspension

Academic suspension means the student is prohibited from registering at UToledo for a period of at least one semester. A student is subject to academic suspension if that person falls below the minimum GPA listed in the Academic Standing policy or fails to make sufficient progress toward attainment of the degree by accumulating excess W grades. Students may remove Incompletes while under suspension. Refer to the college's Office of Student Services (<https://www.utoledo.edu/hhs/student-services/reinstatement.html>) site for additional information on academic suspension.

## Dismissal

Dismissed students are not eligible for readmission to the College of Health and Human Services. A student may be dismissed for:

- Failing to meet the conditions of readmission after suspension from the College of Health and Human Services.
- Demonstrating patterns of behavior that are inappropriate for students preparing for professional roles or for failing to meet the morals standard as defined by the State of Ohio.

Regulations for academic warning, academic suspension and dismissal apply to both full-time and part-time students. In all matters, the decision of the Dean is final.

## GPA Recalculation for Repeated Courses

Student who have retaken a course and earned a higher grade may petition to have the first grade excluded from grade point average. Credit will only be awarded once for repeated courses. If a grade has been deleted that grade will not be used in determining the UToledo grade point average. No more than a total of 18 semester hours of course work will be deleted. Students who have had their GPAs recomputed under the Academic Forgiveness Policy are not eligible for grade deletions. Specific programs within the college may have more rigorous requirements for grade deletions of major or related courses.

## Student Responsibilities

Students are responsible to complete the following:

- All College of Health and Human Services students are strongly encouraged to see an academic advisor at least once a year.
- Readmit students are responsible for degree requirements in effect at the time of readmission.
- Students are responsible for fulfilling all degree requirements.
- Students are encouraged to meet with their academic advisors as needed for assistance.
- Students must contact the Office of Student Services to schedule an advising appointment.

## Withdrawal Policy (W Grades)

The number of credit hours of W is limited to 22 hours for all undergraduate students in degree programs in the College of Health and Human Services. Once a student has accumulated 22 hours of W, further

withdrawals will be counted as F's in computation of the student's GPA for the purposes of probation or suspension. In addition, students risk the loss of financial aid if they accumulate excessive hours of W.

## Student Services

The Office of Student Services coordinates academic advising for the College of Health and Human Services. The office's mission is to provide quality, timely and comprehensive student services that will enhance student success in achieving academic goals. Although the ultimate responsibility for making personal and educational decisions rests with the individual, every student can benefit from working with the college's advisors, who provide assistance in identifying educational options and enhancing student potential.

Students in the College of Health and Human Services are assigned academic advisors by major. Essential services provided by advisors include monitoring degree requirements, selective admissions within the college, and interpretations of college and University policies and procedures. Advisors are located within the Health and Human Services building.

For more information, please go to <http://www.utoledo.edu/hhs/student-services/>

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[CHHSAdvising@utoledo.edu](mailto:CHHSAdvising@utoledo.edu)

## Degree Requirements

Students in baccalaureate programs must complete a minimum of 120 hours of course work and have the proper number of credit hours as outlined in their program of study. In all baccalaureate programs, a minimum of 60 hours must be taken at the 2000 level or above; of these, a minimum of 30 hours must be taken at the 3000 and 4000 levels.

## College Requirements

The College of Health and Human Services is committed to the health and well-being of our students and the public. Consequently, all College of Health and Human Services students majoring in programs that require contact with patients or clients must provide verification of appropriate immunizations and exemplify ethical practice during their academic careers at The University of Toledo. The requirements for each major are specified under the respective programs.

## University Core Curriculum

Students earning bachelor's or associate's degrees in all University colleges and programs are required to complete the University Core Curriculum. Those courses are distributed in the areas of English composition, mathematics, humanities/fine arts, social sciences, natural sciences and multicultural studies (see the General Section (<https://catalog.utoledo.edu/general-section/>) of this catalog for details). Some colleges and programs require courses in these areas over and above those required to fulfill University core requirements. The student's

academic department or college office should be contacted for specific details.

## Residence Requirement

Students transferring from other institutions must earn at least 30 credit hours in the College of Health and Human Services at The University of Toledo to be eligible for graduation.

Full-time students transferring into the College of Health and Human Services must complete at least the final semester and 25 percent of their program of study in residence within the college. Part-time students must complete the last 12 credit hours and 25 percent of the program of study within the college.

## Department of Exercise & Rehabilitation Sciences

Eric Longsdorf, Chair  
 April Demers, Health Sciences BA Program Director  
 Sarah Long, Health Sciences BS Program Director  
 Holly Eichner, Recreation Therapy Program Director  
 Nicole McKenzie, Respiratory Care Program Director  
 Lauren Miller, Speech-Language Pathology Program Director

The Department of Exercise and Rehabilitation Sciences offers undergraduate degree programs in health sciences, recreation therapy, respiratory care, and speech-language pathology. A minor in health sciences is available.

## Accreditation

- The Recreation Therapy program is accredited by Council on Accreditation of Parks, Recreation, Tourism and Related Professions (COAPRT).
- The Respiratory Care program is accredited by the Commission on Accreditation for Respiratory Care (CoARC).

## Degrees Offered

- BA in Health Sciences (p. 294)
- BS in Health Sciences (p. 298)
- BS in Recreation Therapy (p. 306)
- BS in Respiratory Care (p. 308)
- BS in Speech-Language Pathology (p. 311)
- Minor in Health Sciences (<https://catalog.utoledo.edu/undergraduate/health-human-services/population-health/minor-health-sciences/>)

### EXSC 1460 Fundamentals of Anatomy and Physiology Lab

[1 credit hour]

Laboratory sessions designed to provide the fundamentals of anatomy and physiology of the cell, tissues, and major organ systems of the human body using a systemic approach. Topics include scientific method, anatomical terminology, the cell, the four tissue types, and the eleven organ systems of the human body.

**Corequisites:** EXSC 1560

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

### EXSC 1560 Fundamentals of Anatomy and Physiology

[3 credit hours]

This course describes the fundamentals of anatomy and physiology of the cell, tissues, and major organ systems of the human body using a systemic approach. Topics include anatomical terminology, homeostasis, the cell, the four tissue types, and the eleven organ systems of the human body.

**Corequisites:** EXSC 1460

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

### EXSC 2460 Human Anatomy And Physiology I Lab

[1 credit hour]

Laboratory exercise in anatomical terminology, cell division and transport, histology, and dissection, identification, and physiology of the skeletal system, skeletal muscle system, and nervous system; including the eye and ear.

**Corequisites:** EXSC 2560

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

### EXSC 2470 Human Anatomy And Physiology II Lab

[1 credit hour]

Laboratory exercises in endocrine, cardiovascular, respiratory, digestive, lymphatic, urinary, and reproductive anatomy, histology, physiology, including computer assisted experiments.

**Corequisites:** EXSC 2570

**Term Offered:** Spring, Summer, Fall

### EXSC 2510 Human Anatomy

[3 credit hours]

An integrated study of both regional anatomy and musculoskeletal, cardiovascular, lymphatic, respiratory, neurologic, digestive, renal, endocrine and reproductive systems. Required for students in exercise science and allied health professional programs.

**Prerequisites:** KINE 1700 with a minimum grade of C or EXSC 1700 with a minimum grade of C

**Corequisites:** EXSC 2520

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

### EXSC 2520 Human Anatomy Lab

[1 credit hour]

Laboratory exercises in musculoskeletal, neurological, cardiovascular and respiratory anatomy.

**Corequisites:** EXSC 2510

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

### EXSC 2530 Human Physiology

[3 credit hours]

This course provides foundational information on human physiology. Emphasis is placed on cell physiology, metabolism, as well as the musculoskeletal, cardiovascular, respiratory, endocrine, and immune systems in the maintenance of normal body function.

**Prerequisites:** (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C) or (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C)

**Term Offered:** Spring, Summer, Fall

**EXSC 2540 Human Physiology Lab**

[1 credit hour]

Laboratory exercises in musculoskeletal, neurological, cardiovascular and respiratory physiology.

**Corequisites:** EXSC 2530**Term Offered:** Spring, Summer, Fall**EXSC 2560 Anatomy and Physiology I**

[3 credit hours]

Anatomy and physiology of the human body. Study of cells, tissues, special senses, and the skeletal, muscle, and nervous systems.

**Corequisites:** EXSC 2460**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**EXSC 2570 Human Anatomy and Physiol II**

[3 credit hours]

Anatomy and physiology of human endocrine, blood, cardiovascular, lymphatic, respiratory, digestive, urinary and electrolyte, and reproductive systems.

**Prerequisites:** (KINE 2460 with a minimum grade of C and KINE 2560 with a minimum grade of C) or (EXSC 2460 with a minimum grade of C and EXSC 2560 with a minimum grade of C)**Corequisites:** EXSC 2470**Term Offered:** Spring, Summer, Fall**EXSC 2580 Human Pathophysiology For Health Care**

[3 credit hours]

Study of pathology and general health management of diseases and injuries across the life span. Topics include etiology, symptoms, and the physical and psychological reactions to diseases and injuries of organ systems.

**Prerequisites:** (KINE 2460 with a minimum grade of C and KINE 2470 with a minimum grade of C and KINE 2560 with a minimum grade of C and KINE 2570 with a minimum grade of C) or (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C) or (EXSC 2460 with a minimum grade of C and EXSC 2470 with a minimum grade of C and EXSC 2560 with a minimum grade of C and EXSC 2570 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C) or (EXSC 1560 with a minimum grade of C and EXSC 1460 with a minimum grade of C)**Term Offered:** Spring, Fall**EXSC 2590 Microbiology and Infectious Diseases**

[3 credit hours]

This course describes and differentiates basic Microbiology topics as well as covering bacterial, viral, and protozoan infections within various body systems.

**Prerequisites:** BIOL 2150 with a minimum grade of C or BIOL 2170 with a minimum grade of C or EEES 2150 with a minimum grade of C or KINE 2510 with a minimum grade of C or KINE 2530 with a minimum grade of C or KINE 2560 with a minimum grade of C or EXSC 2510 with a minimum grade of C or EXSC 2530 with a minimum grade of C or EXSC 2560 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**EXSC 3200 Advanced Human Anatomy**

[3 credit hours]

An elective course that applies musculoskeletal anatomy to human movement, function, injury evaluation and rehabilitation through in cadaver observation and dissection.

**Prerequisites:** (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C and KINE 2530 with a minimum grade of C and KINE 2540 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C) or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C)**Term Offered:** Spring, Fall**EXSC 3240 Concepts of Exercise Fitness and Health Strategies**

[3 credit hours]

This focus of this course is the self-exploration of the importance of regular physical activity including cardiovascular and muscular exercise on maintaining physical fitness and wellness. Students will conduct fitness assessments. Min. grade of C for HPFP concentration.

**Prerequisites:** EXSC 1560 with a minimum grade of C and EXSC 1460 with a minimum grade of C or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C)**Term Offered:** Spring, Summer, Fall**EXSC 3520 Applied Exercise Physiology**

[3 credit hours]

This course will provide information related to the physiological responses of the human organism to exercise and exercise training. Emphasis will also be placed on the role exercise plays in health and disease prevention.

**Prerequisites:** KINE 2530 with a minimum grade of C or KINE 2570 with a minimum grade of C or EXSC 2530 with a minimum grade of C or EXSC 2570 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**EXSC 3530 Applied Exercise Physiology Laboratory**

[1 credit hour]

This course is the laboratory component of the applied exercise physiology course. Emphasis will be placed on the concepts learned in lecture. This will occur through hands-on activities and experiments involving various forms of exercise testing and the use of standardized equipment.

**Corequisites:** EXSC 3520**Term Offered:** Spring, Summer, Fall**EXSC 3580 Exercise Pathophysiology**

[3 credit hours]

A discovery of the pathophysiology of organ systems, concentrating on metabolic, cardiovascular, respiratory, endocrine, muscle, and gastrointestinal systems with exercise as a guiding element of discussion.

**Prerequisites:** EXSC 2530 with a minimum grade of C**Term Offered:** Spring, Fall

**EXSC 3680 Sport and Exercise Pharmacology**

[3 credit hours]

Provide the basics of pharmacology related to sport and exercise including: pharmacokinetics, indications and contradictions of various drugs and legal concerns related to using therapeutic and non-therapeutic drugs. Min. grade of C for HPFP concentration.

**Prerequisites:** (KINE 2560 with a minimum grade of C and KINE 2460 with a minimum grade of C and KINE 2570 with a minimum grade of C and KINE 2470 with a minimum grade of C) or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C) or (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C and KINE 2530 with a minimum grade of C and KINE 2540 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C)

**Term Offered:** Spring**EXSC 3830 Principles of Strength Conditioning**

[3 credit hours]

This course provides students with a fundamental understanding of muscular strength conditioning principles and the application of these principles to exercise programming relevant to physical activity and athletic performance. Min. grade of C for HPFP concentration.

**Prerequisites:** (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C and KINE 2530 with a minimum grade of C and KINE 2540 with a minimum grade of C and KINE 3520 with a minimum grade of C and KINE 3530 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C) or (KINE 2560 with a minimum grade of C and KINE 2460 with a minimum grade of C and KINE 2570 with a minimum grade of C and KINE 2470 with a minimum grade of C and KINE 3520 with a minimum grade of C and KINE 3530 with a minimum grade of C) or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C)

**Term Offered:** Fall**EXSC 3850 Cardiac Dysrhythmia Interpretation**

[3 credit hours]

This course examines cardiac anatomy, electrophysiology and basic cardiac rhythms with an emphasis on the recognition and interpretation of cardiac dysrhythmias. Min. grade of C for HPFP concentration.

**Prerequisites:** (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C and KINE 2530 with a minimum grade of C and KINE 2540 with a minimum grade of C and KINE 3520 with a minimum grade of C and KINE 3530 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C) or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C)

**Corequisites:** EXSC 3860**Term Offered:** Fall**EXSC 3860 Cardiac Dysrhythmia Lab**

[1 credit hour]

This course is the practical application of the techniques required to administer a 12 lead EKG at rest and during exercise. Students will record multiple EKG's and interpret the rhythm. Min. grade of C for HPFP concentration.

**Prerequisites:** (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C and KINE 2530 with a minimum grade of C and KINE 2540 with a minimum grade of C and KINE 3520 with a minimum grade of C and KINE 3530 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C) or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C)

**Corequisites:** EXSC 3850**Term Offered:** Fall**EXSC 3950 Research Design in Exercise Science**

[3 credit hours]

This course emphasizes the design, analysis and interpretation of qualitative and quantitative research methods in the areas of athletic training, exercise science and other health-related fields. Min. grade of C or better for HPFP concentration.

**Prerequisites:** MATH 2600 with a minimum grade of D- or RESM 4100 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EXSC 4140 Fitness Internship I**

[4 credit hours]

Students will actively engage and participate in the day-to-day functions including operational, managerial and client assessments in a health, wellness or fitness facility (16 hours/week). Min. grade of C for HPFP concentration.

**Prerequisites:** (KINE 3850 with a minimum grade of C and KINE 3860 with a minimum grade of C and KINE 4850 with a minimum grade of C and KINE 4860 with a minimum grade of C) or (EXSC 3850 with a minimum grade of C and EXSC 3860 with a minimum grade of C and EXSC 4850 with a minimum grade of C and EXSC 4860 with a minimum grade of C)

**Term Offered:** Fall**EXSC 4210 Exercise Facility Management**

[3 credit hours]

Students will develop an understanding of the skills necessary for marketing, promoting and managing various fitness, wellness and rehabilitation facilities. Min. grade of C for HPFP concentration.

**Term Offered:** Spring**EXSC 4250 Readings in Exercise Biology**

[3 credit hours]

Faculty and student directed readings of original research in Exercise Biology, along with laboratory demonstrations. Readings will focus on how changes in physical activity influence the biology of skeletal muscle.

**Term Offered:** Spring, Fall**EXSC 4540 Applied Biomechanics**

[3 credit hours]

This course focuses on the application of biomechanics concepts to the acquisition and refinement of fundamental movement patterns, basic functional skills and sport activities. Such topics as locomotion, balance and the biomechanical basis of injury are examined.

**Prerequisites:** (KINE 2510 with a minimum grade of C and KINE 2530 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2530 with a minimum grade of C)

**Term Offered:** Spring, Fall**EXSC 4550 Applied Biomechanics Lab**

[1 credit hour]

This course is the laboratory component of the applied biomechanics course. Emphasis will be placed on the application of the concepts learned in lecture to rehabilitation, sports injury, exercise, and sport situations. This will occur through hands-on activities and experiments involving contemporary forms of biomechanical instrumentation.

**Corequisites:** EXSC 4540**Term Offered:** Spring, Fall**EXSC 4640 Neurological And Pathological Foundations Of Rehabilitation**

[3 credit hours]

Study of neurological control of normal movement and the implications of various medical pathologies for rehabilitation. Emphasis on inflammatory processes, metabolic and vascular disturbances, traumatic injuries, nutritional deficiencies, neoplasms, degenerative conditions and congenital disorders.

**Prerequisites:** (KINE 2510 with a minimum grade of C or KINE 2560 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C or EXSC 2560 with a minimum grade of C)

**Term Offered:** Spring, Summer, Fall**EXSC 4830 Principles of Endurance Conditioning**

[3 credit hours]

This course is intended to prepare students with a fundamental understanding of endurance conditioning principles and the application of these principles to exercise programming relevant to physical activity and athletic performance.

**Prerequisites:** (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C and KINE 2530 with a minimum grade of C and KINE 2540 with a minimum grade of C and KINE 3520 with a minimum grade of C and KINE 3530 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C) or (KINE 2560 with a minimum grade of C and KINE 2460 with a minimum grade of C and KINE 2570 with a minimum grade of C and KINE 2470 with a minimum grade of C and KINE 3520 with a minimum grade of C and KINE 3530 with a minimum grade of C) or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C)

**Term Offered:** Fall**EXSC 4840 Fitness Internship II**

[4 credit hours]

Students will actively engage and participate in the day-to-day functions including operational, managerial and client assessments in a health, wellness or fitness facility (16 hours/week). Min. grade of C for HPFP concentration.

**Prerequisites:** KINE 4140 with a minimum grade of C or EXSC 4140 with a minimum grade of C

**Term Offered:** Spring**EXSC 4850 Clinical Exercise Testing**

[3 credit hours]

The purpose of this course is to provide students with an understanding of the relationship between exercise and chronic disease, an understanding of the mechanisms and adaptations by which exercise influences the disease process, and an understanding of the role and importance of exercise testing and training in the prevention, evaluation and treatment of these chronic diseases. Min. grade of C for HPFP concentration.

**Prerequisites:** (KINE 3850 with a minimum grade of C and KINE 3860 with a minimum grade of C) or (EXSC 3850 with a minimum grade of C and EXSC 3860 with a minimum grade of C)

**Term Offered:** Spring**EXSC 4860 Clinical Exercise Testing Lab**

[1 credit hour]

The purpose of this course is to provide students with the skills needed to perform a 12 lead electrocardiogram stress test on their own. Min. grade of C for HPFP concentration.

**Prerequisites:** EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C

**Corequisites:** EXSC 4850**Term Offered:** Spring

**EXSC 4900 Human Performance Seminar**

[1-3 credit hours]

Classroom and laboratory analysis of current research in varied topic areas.

**Term Offered:** Spring, Fall**EXSC 4940 Internship-Practicum**

[2-15 credit hours]

Clinical experience in locations both inside and outside the university setting. Placement depends on area of study.

**Term Offered:** Summer**EXSC 4990 Independent Study In Exercise Science**

[1-3 credit hours]

Directed individual study. Specialty title, seminar sheet and permission of instructor required.

**Term Offered:** Spring, Summer, Fall**OCCT 1000 Toledo Transition (T2) - Postsecondary Program Seminar**

[1-5 credit hours]

Addresses topics on independent living, self-determination &amp; student development, academics, and employment.

**Term Offered:** Spring, Summer, Fall**OCCT 2550 PURPOSEFUL LIVING ROLE OF OCCUPATIONAL THERAPY**

[3 credit hours]

Introduces the occupational therapy profession and occupational therapy's role in maintaining functional daily living. Explore your daily occupations through self-reflection and develop strategies for personal growth.

**Term Offered:** Spring, Fall**OCCT 3990 Independent Study in Occupational Therapy**

[0-3 credit hours]

A course designed to provide educational opportunities related to occupational therapy under the direct supervision of a faculty member. Requires an agreement between the student and instructor/advisor.

**Term Offered:** Spring, Summer, Fall**RCBS 3010 Respiratory Care Fundamentals**

[4 credit hours]

A study of the anatomy and physiology of the respiratory and cardiovascular systems, including the physics of gas exchange, ventilation, and blood flow.

**Corequisites:** RCBS 3020**Term Offered:** Summer**RCBS 3020 Respiratory Care Practice I**

[4 credit hours]

An introductory experience in the basic assessment and care of the patient with cardiopulmonary disease. Ethical issues, interpersonal communication, and infection control in the healthcare setting will also be covered.

**Corequisites:** RCBS 3010**Term Offered:** Summer**RCBS 3110 Respiratory Care Therapeutics I**

[4 credit hours]

Etiology, pathophysiology, clinical manifestations, and treatment of selected diseases of pulmonary and cardiovascular systems with emphasis on pharmacologic principles and agents used in the treatment of those diseases.

**Prerequisites:** (RCBS 3010 with a minimum grade of C and RCBS 3020 with a minimum grade of C)**Term Offered:** Fall**RCBS 3120 Respiratory Care Practice II**

[7 credit hours]

Didactic, laboratory, and introductory clinical experiences with a variety of equipment and procedures that are used to establish and maintain a patent airway, and to monitor and treat patients with cardiopulmonary diseases.

**Prerequisites:** (RCBS 3010 with a minimum grade of C and RCBS 3020 with a minimum grade of C)**Term Offered:** Fall**RCBS 3130 Cardiopulmonary Diagnostics I**

[4 credit hours]

Discussion of the theory and selected techniques used in cardiopulmonary diagnostics, including analysis of blood gases, cardiac rhythms, hemodynamic monitoring values, spirometry results, and chest x-rays.

**Prerequisites:** (RCBS 3010 with a minimum grade of C and RCBS 3020 with a minimum grade of C)**Term Offered:** Fall**RCBS 3200 Introduction to Critical Care**

[1 credit hour]

An introductory experience in the theory, initiation and practice of providing non-invasive and mechanical ventilation in a critical care setting.

**Prerequisites:** RCBS 3110 with a minimum grade of C and RCBS 3120 with a minimum grade of C and RCBS 3130 with a minimum grade of C**Term Offered:** Spring**RCBS 3210 Respiratory Care Therapeutics II**

[4 credit hours]

Continuation of RCBS 3110 with consideration of disease states of the pulmonary and cardiovascular systems not previously considered. Emphasis on analysis of assessment, diagnosis and treatment of individual patients by students.

**Prerequisites:** (RCBS 3110 with a minimum grade of C and RCBS 3120 with a minimum grade of C and RCBS 3130 with a minimum grade of C)**Term Offered:** Spring**RCBS 3220 Respiratory Care Practice III**

[7 credit hours]

Theoretical principles involved in the initiation, maintenance, and discontinuance of mechanical ventilation. Laboratory experiences with a variety of adult mechanical ventilators. Clinical experiences providing respiratory care for patients requiring mechanical ventilation.

**Prerequisites:** (RCBS 3110 with a minimum grade of C and RCBS 3120 with a minimum grade of C and RCBS 3130 with a minimum grade of C)**Term Offered:** Spring



**RCBS 3230 Cardiopulmonary Diagnostics II**

[2 credit hours]

Classroom and field experiences in the theory and practice of selected cardiopulmonary diagnostic procedures including measures of pulmonary volumes, flows, gas distribution, and gas diffusion. Capnography, exercise testing, and specialized test regimens will also be covered.

**Prerequisites:** (RCBS 3110 with a minimum grade of C and RCBS 3120 with a minimum grade of C and RCBS 3130 with a minimum grade of C)

**Term Offered:** Spring, Fall

**RCBS 3300 Advanced Cardiac Life Support**

[1 credit hour]

American Heart Association Advanced Cardiac Life Support course designed to aid in the management of cardiopulmonary emergencies. Students must have previous knowledge of cardiac pharmacology and rhythms, and current CPR certification.

**Term Offered:** Spring, Fall

**RCBS 4140 Integrated Clinical Practice I**

[4 credit hours]

Clinical experiences in the acute care setting that requires the application of theory related to the diagnosis, treatment and management of adult, neonatal and pediatric patients with cardiopulmonary disease.

**Prerequisites:** (RCBS 3210 with a minimum grade of C and RCBS 3220 with a minimum grade of C and RCBS 3230 with a minimum grade of C)

**Term Offered:** Summer, Fall

**RCBS 4150 Neonatal/Pediatric Respiratory Care**

[4 credit hours]

A discussion of the etiology, pathophysiology and treatment of neonatal and pediatric disorders. Laboratory exercises designed to familiarize student with neonatal and pediatric resuscitation and ventilation.

**Prerequisites:** (RCBS 3210 with a minimum grade of C and RCBS 3220 with a minimum grade of C and RCBS 3230 with a minimum grade of C)

**Term Offered:** Spring, Fall

**RCBS 4160 Clinical Assessment**

[3 credit hours]

This course will provide the students with knowledge and enhance their critical thinking skills related to patient assessment and the development and modification of patient respiratory care plans.

**Prerequisites:** (RCBS 3210 with a minimum grade of C and RCBS 3220 with a minimum grade of C and RCBS 3230 with a minimum grade of C)

**Term Offered:** Spring, Fall

**RCBS 4240 Integrated Clinical Practice II**

[3 credit hours]

Clinical experiences with a primary focus on advanced skills used in the management of cardiopulmonary patients of all ages in the acute and subacute care settings.

**Prerequisites:** (RCBS 4150 with a minimum grade of C and RCBS 4140 with a minimum grade of C)

**Term Offered:** Spring

**RCBS 4510 Respiratory Care in Alternate Sites**

[3 credit hours]

The delivery of care to cardiopulmonary patients outside of the acute care facility will be discussed. Standards of care in addition to the funding of this care will be investigated. Special procedures in respiratory care will be presented.

**Term Offered:** Spring, Fall

**RCBS 4700 Research Analysis In Respiratory Care**

[3 credit hours]

Review of appropriate statistical knowledge required to analyze applied/clinical and basic published research. Includes a review of the elements of basic research design, reliability and validity, and critical review of cardiopulmonary research literature.

**Term Offered:** Spring, Fall

**RCBS 4800 Issues In Professional Practice**

[3 credit hours]

A capstone course designed to prepare the senior student for professional practice. Decision-making skills in complex clinical situations are developed through the use of clinical simulations and student case presentations.

**Prerequisites:** (RCBS 4140 with a minimum grade of C and RCBS 4150 with a minimum grade of C and RCBS 4160 with a minimum grade of C) and RCBS 4700 with a minimum grade of C

**Term Offered:** Spring, Fall

**RCBS 4810 Preparation For Professional Practice**

[1 credit hour]

This laboratory course is designed to complement the corequisite RCBS 4800 lecture course. Emphasis on enhancing the students' ability to integrate complex cognitive and psychomotor skills in preparation for professional practice.

**Term Offered:** Spring

**RCBS 4990 Independent Study**

[1-4 credit hours]

Independent study of specific topics and issues under the supervision of a faculty member of the department of health promotion and human performance. The student will participate in independent reading, clinical/laboratory research, field experience and other similar activities. Independent study course must have a specialty; seminar sheet required.

**Term Offered:** Spring

**RCRT 1300 Introduction To Recreation And Leisure Studies**

[3 credit hours]

An introductory course which gives an overview of recreation and leisure in educational, governmental, institutional and professional settings. Explores historical, social and economic implications from personal and professional perspectives. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall

**RCRT 1310 Introduction to Recreational Therapy Programming**

[3 credit hours]

An introductory course that presents theories and principles of programming, program planning, practical experiences in implementation, and facilitation of recreational therapy programs. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall

**RCRT 3310 Inclusion and Recreational Therapy Services**

[3 credit hours]

An introductory course which defines the principals of inclusion and major legislation that impacts the provision and delivery of recreational therapy services for individuals with disabilities. Thirty hour volunteer component required. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall

**RCRT 3710 Outdoor and Adaptive Sports Program Delivery in Recreational Therapy Practice**

[3 credit hours]

An introduction to theory and techniques related to risk management, leadership, and administration of outdoor pursuits in RT practice as it applies to working with individuals in clinical and non-clinical settings. Students will also gain an understanding of adapted sports, modification of equipment, adapted sports competition for persons with disabilities and the classification system governing adapted sports competition for veterans. Minimum "C" required for RCRT majors. Prerequisite: Senior Standing and Acceptance in the Recreational Therapy program.

**Term Offered:** Spring, Fall**RCRT 4000 Community and Event Planning in Recreational Therapy Service**

[3 credit hours]

This course introduces the principles, strategies, and risk management concerns for planning a variety of events to achieve RT treatment outcomes and community/social integration. Students gain experience planning accessible events for a variety of group sizes and diverse populations in RT service. Event critiques required. Minimum "C" required for RCRT majors.

**Term Offered:** Summer, Fall**RCRT 4010 Planning & Promotion of Sport**

[3 credit hours]

This course focuses on the basic principles of marketing and delivery of services associated with intercollegiate athletics, professional, and multi-sport club operations, facilities and management of resources. This course also examines motivation and behavior of sports tourists.

**Term Offered:** Fall**RCRT 4040 Recreational Therapy Services within the Veterans Administration**

[3 credit hours]

The course will focus on current trends, issues, and clinical techniques specific to serving Veterans within the Veteran's Administration VA system as a Recreational Therapist. Course content will include orientation to military culture and rituals, specific diagnoses, and conditions commonly experienced by Veterans, delivery of outcome-based RT interventions and special programs, partnerships, and an in-depth look into internships and employment opportunities within the VA system.

**Term Offered:** Spring, Fall**RCRT 4330 Administration In Recreational Therapy**

[3 credit hours]

This course focuses on the administrative functions of delivering Recreational Therapy services. Students will gain an understanding of the aspects of management principles including ethics, legislation, technology, quality management, risk management, financial and human resources, marketing, and accrediting agencies. Minimum "C" required for RCRT majors. Note: Senior Standing and Acceptance in the Recreational Therapy program.

**Term Offered:** Spring, Fall**RCRT 4340 Leisure, Recreation, And Aging in Recreational Therapy Practice**

[3 credit hours]

This course provides a study of the impacts of aging on leisure and recreation activities during middle and later adulthood by investigating the aging process, leisure across the lifespan, and the impact of leisure and recreation on quality of life and wellness from an RT perspective. Minimum grade of "C" required for RCRT majors.

**Prerequisites:** (RCRT 1300 with a minimum grade of C and RCRT 1310 with a minimum grade of C and RCRT 3310 with a minimum grade of C and RCRT 4720 with a minimum grade of C)

**Term Offered:** Spring, Fall**RCRT 4440 Park And Recreation Planning**

[3 credit hours]

An integration of landscape architecture, facility design and location, as well as the functional aesthetic considerations of park and recreational facility planning. Emphasis will be on plan-formulation procedures.

**Term Offered:** Spring**RCRT 4450 Research Applications In Recreational Therapy**

[3 credit hours]

This course introduces research applications utilized by Recreation Therapy practitioners. Students will learn about evidence based practice, development and implementation of survey research, and the use of experimental designs. Minimum "C" required for RCRT majors.

**Term Offered:** Fall**RCRT 4560 Recreational Therapy Interventions 1**

[3 credit hours]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using Recreational Therapy interventions utilizing leisure education, assistive technology, and animal assisted therapy within treatment settings. Minimum "C" required for RCRT majors. Registration restriction: Acceptance into the RT professional sequence.

**Prerequisites:** (RCRT 1300 with a minimum grade of C and RCRT 1310 with a minimum grade of C and RCRT 3310 with a minimum grade of C and RCRT 4720 with a minimum grade of C)

**Term Offered:** Fall**RCRT 4565 Recreational Therapy Interventions 2**

[3 credit hours]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using Recreational Therapy interventions utilizing therapeutic art, horticulture, and stress management/relaxation therapy within treatment settings. Minimum "C" required for RCRT majors.

**Prerequisites:** (RCRT 4340 with a minimum grade of C and RCRT 4730 with a minimum grade of C and RCRT 4740 with a minimum grade of C and RCRT 4560 with a minimum grade of C)

**Term Offered:** Spring**RCRT 4570 Recreational Therapy Interventions 3**

[2 credit hours]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using Recreational Therapy interventions utilizing therapeutic fitness and aquatic therapy within treatment settings. Minimum "C" required for RCRT majors.

**Term Offered:** Fall

**RCRT 4600 Therapeutic Arts**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using arts and crafts modalities. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4610 Rt Intervention: Horticulture Therapy**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using horticulture modalities. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4620 Animal Assisted Therapy**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using a variety of animal-assisted modalities. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4630 Therapeutic Activities**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using a variety of games, humor and play modalities. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4640 Rt Intervention: Therapeutic Groups**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using therapeutic group techniques and processes as a modality. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4660 Relaxation And Stress Management**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using relaxation and stress management techniques as a modality. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4670 Rt Intervention: Leisure Education**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using leisure education activities, including: social skills, values clarification, leisure awareness, resources and knowledge. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4680 Rt Intervention: Assistive Technology And Techniques**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes utilizing assistive technology, techniques, and resources in therapeutic settings. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4690 Rt Intervention: Aquatic Therapy**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes utilizing swimming, evidence-based aquatic programming methods, and resources. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Summer, Fall**RCRT 4720 Introduction To Therapeutic Recreation**

[3 credit hours]

This course is designed to introduce the student to theories, models, principles, and history of therapeutic recreation service. Through lectures, discussions and self-directed learning activities, the student will examine the structure and function of therapeutic recreation processes in a variety of treatment settings. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4730 Physical and Neurological Diagnosis and Conditions in Recreational Therapy Practice**

[3 credit hours]

This course is designed to provide the student with in-depth knowledge of the diagnostic criteria, etiology, and symptomology related to physical, neurological, sensory, and metabolic diagnosis and conditions across the lifespan with a focus on RT practice. RT interventions, pharmacological interventions, family involvement, risk management, and other implications impacting RT practice will also be examined.

**Prerequisites:** (RCRT 1300 with a minimum grade of C and RCRT 1310 with a minimum grade of C and RCRT 3310 with a minimum grade of C and RCRT 4720 with a minimum grade of C)

**Term Offered:** Fall**RCRT 4740 Assessment And Documentation In Therapeutic Recreation**

[3 credit hours]

This course introduces the student to the APIE(D) process, reviews assessment tools (standardized and self-designed) used in practice, common documentation methods and skills needed for therapeutic recreation practice including: initial assessment, treatment planning, documentation, and discharge planning. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4750 Group Dynamics In Recreational Therapy**

[3 credit hours]

This course introduces students to the concepts and theories of the therapeutic group process as it applies to professional practice. Students will be introduced to and practice: facilitation skills, behavior modification techniques, and effective communication and leadership skills. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4770 Recreational Therapy Project Design**

[1 credit hour]

In support of the recreational therapy internship, the student will design a capstone project that links practical experience with formal academic preparation. Minimum "C" required for RCRT majors. Prerequisite: Senior Standing and Acceptance in the Recreational Therapy program.

**Corequisites:** RCRT 4940**Term Offered:** Spring, Summer

**RCRT 4780 Recreational Therapy Project Evaluation**

[1 credit hour]

In support of RCRT 4770, this course requires the student to evaluate, and prepare a professional presentation of the recreation therapy internship capstone project. Minimum "C" required for RCRT majors. Prerequisite: Senior Standing and Acceptance in the Recreational Therapy program.

**Term Offered:** Summer**RCRT 4790 Psychological Diagnosis and Conditions in Recreational Therapy Practice**

[3 credit hours]

This course is designed to provide the student with in-depth knowledge of the diagnostic criteria, etiology, and symptomology related to psychological conditions across the lifespan with a focus on RT practice. RT interventions, pharmacological interventions, family involvement, risk management, and other implications impacting RT practice will be examined.

**Prerequisites:** (RCRT 4340 with a minimum grade of C and RCRT 4730 with a minimum grade of C and RCRT 4740 with a minimum grade of C and RCRT 4560 with a minimum grade of C)

**Term Offered:** Spring**RCRT 4800 Clinical: Physical Rehabilitation**

[1 credit hour]

This course requires a 50-hour practicum experience in a community agency. The practicum experience provides the student a structured environment to apply the APIE(D) process with a physical rehabilitation population. Minimum "C" required for RCRT majors.

**Prerequisites:** RCRT 4730 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**RCRT 4810 Recreational Therapy Fieldwork 1**

[1 credit hour]

This course requires a 50-hour practicum experience in a community agency. The practicum experience provides the student a structured environment to apply the Recreational Therapy APIE(D) process with a population served by a CTRS. Minimum "C" required for RCRT majors. Registration restriction: Acceptance into the RT professional sequence.

**Prerequisites:** RCRT 4730 with a minimum grade of C and RCRT 4790 with a minimum grade of C and RCRT 4740 with a minimum grade of C

**Term Offered:** Fall**RCRT 4820 Recreational Therapy Fieldwork 2**

[1 credit hour]

This course requires a 50-hour practicum experience in a community agency. The practicum experience provides the student a structured environment to apply the Recreational Therapy APIE(D) process with a population served by a CTRS. Minimum "C" required for RCRT majors. Registration restriction: Acceptance into the professional sequence.

**Prerequisites:** RCRT 4730 with a minimum grade of C and RCRT 4790 with a minimum grade of C and RCRT 4740 with a minimum grade of C

**Term Offered:** Fall**RCRT 4830 Recreational Therapy Fieldwork 3**

[1 credit hour]

This course requires a 50-hour practicum experience in a community agency. The practicum experience provides the student a structured environment to apply the Recreational Therapy APIE(D) process with a population served by a CTRS. Minimum "C" required for RCRT majors. Registration restriction: Acceptance into the professional sequence.

**Prerequisites:** RCRT 4730 with a minimum grade of C and RCRT 4790 with a minimum grade of C and RCRT 4740 with a minimum grade of C

**Term Offered:** Spring**RCRT 4840 Recreational Therapy Fieldwork 4**

[1 credit hour]

This course requires a 50-hour practicum experience in a community agency. The practicum experience provides the student a structured environment to apply the Recreational Therapy APIE(D) process with a population served by a CTRS. Minimum "C" required for RCRT majors. Registration restriction: Acceptance into the professional sequence.

**Prerequisites:** RCRT 4730 with a minimum grade of C and RCRT 4790 with a minimum grade of C and RCRT 4740 with a minimum grade of C

**Term Offered:** Spring**RCRT 4850 Recreational Therapy Internship Preparation**

[1 credit hour]

This course is designed to prepare the student for the recreational therapy internship process and professional employment in recreational therapy. Students will learn and practice professional skills, such as, resume writing, interviewing techniques, and professionalism. Student internship expectations and professional certifications and licensure are also addressed. Minimum "C" required for RCRT majors. Prerequisite: Senior Standing and Acceptance in the Recreational Therapy program.

**Term Offered:** Spring, Fall**RCRT 4860 Therapeutic Fitness**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using therapeutic fitness modalities. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4870 Comprehensive Program Planning In Recreational Therapy**

[3 credit hours]

This course requires the student to apply cumulative knowledge of the RT APIE(D) process through designing evidence-based: treatment programs, program evaluations, protocols and treatment plans in recreation therapy practice. Minimum "C" required for RCRT majors. Prerequisite: Senior Standing and Acceptance in the Recreational Therapy program.

**Term Offered:** Spring**RCRT 4900 Seminar In Recreation And Leisure**

[1-3 credit hours]

This course provides faculty the opportunity to develop additional curriculum in recreation therapy related academic areas not offered as part of the current curriculum. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall

**RCRT 4930 Senior Internship**

[4 credit hours]

An opportunity for the student to become totally involved as an intern in functionally related tasks which will help prepare for an appropriate role as a professional in the field. Not available for therapeutic recreation students. This course may be taken twice in the same semester.

**Term Offered:** Spring, Summer, Fall**RCRT 4940 Internship In Recreational Therapy**

[5 credit hours]

In accordance with the University of Toledo and NCTRC certification requirements, this course requires 560 hours of internship experience over a minimum of 14 consecutive weeks supervised by a CTRS. The internship experience is only offered in the summer and requires faculty approval. Minimum "C" required for RCRT majors.

**Prerequisites:** RCRT 4950 with a minimum grade of D-**Term Offered:** Summer**RCRT 4950 Recreation Therapy Internship I**

[5 credit hours]

In accordance with the University of Toledo and NCTRC certification requirements, this course requires 280 hours of internship experience over a minimum of 7 consecutive weeks supervised by a CTRS. The internship experience is only offered in the summer and requires faculty approval. Minimum "C" required for RCRT majors.

**RCRT 4960 Recreation Therapy Internship II**

[5 credit hours]

In accordance with the University of Toledo and NCTRC certification requirements, this course requires 280 hours of internship experience over a minimum of 7 consecutive weeks supervised by a CTRS. The internship experience is only offered in the summer and requires faculty approval. Minimum "C" required for RCRT majors.

**RCRT 4990 Independent Study In Recreation And Leisure Studies**

[1-3 credit hours]

This course provides students the opportunity to develop an independent learning experience in support of academic and/or professional interests. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Summer, Fall**SLP 1400 Introduction to Communication Disorders**

[3 credit hours]

A study of causative factors and characteristics of communicative disorders in comparison to normal speech/language/hearing processes.

**Term Offered:** Fall**SLP 2150 Speech and Hearing Science**

[4 credit hours]

A detailed exploration of the speech and language production system, as well as the hearing mechanism with relation to the auditory environment. Information on aerodynamic and acoustic parameters of speech, the anatomy and physiology of the speech and hearing mechanisms, the neural basis of speech/language/hearing, and the speech perception system is provided during this course. The course is designed with lab experiences so students can get hands-on practice.

**Term Offered:** Spring**SLP 2400 Communication Disorders**

[3 credit hours]

A study of causative factors and characteristics of communicative disorders in comparison to normal speech/language/hearing processes.

**Term Offered:** Spring, Fall**SLP 3010 Clinical Phonetics**

[0-4 credit hours]

Understanding of articulatory and acoustic phonetics with emphasis on the development of transcription skills using the International Phonetic Alphabet in recording normal and disordered speech production. Laboratory required for transcription skill development.

**Term Offered:** Spring, Fall**SLP 3020 Anatomy And Physiology Of Communication Mechanisms**

[0-4 credit hours]

The study of the anatomy and physiology of the mechanisms used for communication including oral-pharyngeal-esophageal, respiratory, and neurological systems.

**Term Offered:** Spring, Fall**SLP 3030 Normal Language Acquisition**

[0-4 credit hours]

Presents basic theories of language acquisition and procedures to describe the developmental sequence of childhood language. Procedures and techniques for analyzing childhood language are introduced and practiced in laboratory experiences.

**Term Offered:** Spring, Fall**SLP 3150 Speech and Hearing Science**

[0-4 credit hours]

A detailed exploration of the speech and language production system, as well as the hearing mechanism with relation to the auditory environment. Information on aerodynamic and acoustic parameters of speech, the anatomy and physiology of the speech and hearing mechanisms, the neural basis of speech/language/hearing, and the speech perception system is provided during this course. The course is designed with lab experiences so students can get hands-on practice.

**Term Offered:** Spring, Fall**SLP 3200 Articulation/Phonological Disorders**

[0-4 credit hours]

Assessment techniques and intervention strategies for persons with disorders of the sound system of the language. Theories of phonological acquisition and etiological factors will be discussed during this course. Laboratory experience required.

**Prerequisites:** SLP 3010 with a minimum grade of D- and SLP 3020 with a minimum grade of D-**Term Offered:** Spring, Fall**SLP 3300 Language Disorders**

[0-4 credit hours]

Course includes the identification of etiologic bases and characteristics of language disorders. Assessment strategies leading to choice of intervention techniques will be discussed. Laboratory experience required.

**Prerequisites:** SLP 3030 with a minimum grade of C**Term Offered:** Spring, Fall**SLP 3400 Clinical Audiology**

[3 credit hours]

The student learns to administer and interpret the comprehensive auditory battery consisting of pure-tone air conduction and bone conduction thresholds, speech reception thresholds, speech discrimination tests and acoustic emittance test battery.

**Term Offered:** Spring, Fall

**SLP 3800 Methods For Clinical Intervention**

[3 credit hours]

Teaches methods of intervention of speech, language and hearing services in various settings. Emphasis on developing skills in observation, report writing, and structuring intervention services and their implementation. Requires 25 hours of observation. Mandatory clinic meeting, and one hour lab duty. Laboratory experience required.

**Prerequisites:** (SLP 3200 with a minimum grade of B- and SLP 3300 with a minimum grade of B-)

**Term Offered:** Spring, Fall

**SLP 4000 Beginning Clinical Practicum**

[2 credit hours]

Supervised participation in structured individual or group intervention leading to the accumulation of 25 clinical hours of practicum.

**Prerequisites:** SLP 3800 with a minimum grade of B-

**Term Offered:** Spring, Summer, Fall

**SLP 4350 Concomitant Disorders**

[3 credit hours]

This capstone course explores literature in advanced speech and language disorders as well as intervention communication disorders.

**Term Offered:** Spring

**SLP 4910 Directed Research In Speech-Language Pathology**

[1-5 credit hours]

Directed research provides students the opportunity to explore specific topics and develop individual research with a faculty member. Current questions in the area of speech-language pathology will be the focus.

**Term Offered:** Spring, Summer, Fall

**SLP 4920 Readings In Speech-Language Pathology**

[1-5 credit hours]

Individual Readings is designed to provide students with opportunities to examine literature related to specific issues. The student works under the direction of faculty in the speech-language pathology program.

**SLP 4980 Special Topics In Speech-Language Pathology**

[1-5 credit hours]

An advanced course for undergraduate majors in speech-language pathology or majors in related fields covering an important area of communication disorders. Student may repeat this course under different section numbers.

**Term Offered:** Spring, Fall

**SLP 4990 Independent Study Speech-Language Pathology**

[1-5 credit hours]

Independent study provides students with opportunities to work individually on issues under the direction of the speech-language pathology program faculty. The student meets with instructor without formal classes.

**Term Offered:** Spring, Summer, Fall

## BA in Health Sciences

The University of Toledo offers a bachelor of arts degree in health sciences. This degree requires 120 credit hours for graduation. Health sciences provides students with an introduction to a variety of health professions and broad prerequisite knowledge. Through its mix of sciences and interdisciplinary core courses, the degree offers students rigorous and diverse content that will prepare them for success in health and healthcare related careers or professional programs upon graduation.

The Pre-Occupational Therapy concentration prepares students for success in graduate occupational therapy programs. The curriculum provides the most commonly required prerequisite courses as well as the contemporary knowledge, experiences, and perspectives that will prepare students to provide high quality care to future patients and communities.

The Social Determinants of Health concentration focuses on the nonmedical factors that impact health and includes a two-semester capstone experience. Students will be prepared for a variety of health-related careers, including community and population health, nonprofit and for-profit health leadership, and research and policy development.

- Health Sciences - Pre-Occupational Therapy Concentration, BA (p. 294)
- Health Sciences - Social Determinants of Health Concentration, BA (p. 295)

## Health Sciences - Pre-Occupational Therapy Concentration, BA Requirements

Code	Title	Hours
<b>Skills Area (10 hours)</b>		<b>10</b>
ENGL 1110	College Composition I	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	
MATH 2600	Introduction To Statistics <small>Requires MATH 1200 minimum C- or ACT/SAT or Placement Test</small>	
HHS 1010	Introduction to Health Sciences I with Orientation	
Humanities/Fine Arts (6 hours from UToledo Core Curriculum)		3
COMM 1010	Comm Principles And Practices	3
or COMM 2840 Interpersonal Communication		
Social Sciences (6 hours) (satisfies social sciences core curriculum requirement)		6
PSY 1010	Principles Of Psychology	
SOC 1010	Introduction To Sociology	
Natural Sciences (7 hours) (satisfies natural sciences core curriculum requirement)		7
BIOL 1120	Survey Of Biology	
EXSC 2560	Anatomy and Physiology I	
EXSC 2460	Human Anatomy And Physiology I Lab	
Core Electives (9 hours) (Math, Humanities, Social Sciences, and/or Natural Sciences from the UToledo Core Curriculum)		9
ART 1040	Foundations of Art Studio Technology <small>Recommended</small>	
COCA 2000	Mindful Creativity <small>Recommended</small>	
PHYS 1300	Physics In Everyday Life <small>Recommended</small>	
Multicultural Studies (6 hours from UToledo core curriculum)		6
DST 2020	Introduction to Disability Studies	
ANTH 2800	Cultural Anthropology	

Code	Title	Hours
<b>Required Major Courses (32 hours)</b>		
HHS 1020	Introduction to Health Sciences II <small>C or better</small>	2
HHS 3100	Introduction to Social Determinants of Health <small>C or better</small>	3

HHS 3600	Foundations of Evidence-Based Practice in Health Science <sup>C or better</sup>	3
HHS 4800	Health Sciences Capstone I <sup>C or better</sup>	3
HHS 4810	Health Sciences Capstone II <sup>C or better</sup>	3
COUN 3000	Cultural Competence in Health and Human Services Professions <sup>C or better</sup>	3
LGL 4230	Health Care And The Law <sup>C or better</sup>	3
HEAL 4800	Public Health Research And Statistics <sup>C or better</sup>	3
HEAL 3600	Prevention And Control Of Disease <sup>C or better</sup>	3
HIM 2300	Healthcare Resources, Payers <sup>C or better</sup>	3
HEAL 4960	Political Determinants of Health <sup>C or better</sup>	3

**Total Hours 32**

**Code Title Hours**

**Pre-Occupational Therapy Concentration Requirements (25 hours)**

HEAL 1800	Medical Terminology	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
OCCT 2550	PURPOSEFUL LIVING ROLE OF OCCUPATIONAL THERAPY	3
PSY 2200	Abnormal Psychology	3
PSY 2510	Lifespan Developmental Psychology	3
HHS 4100	Foundations of Healthcare Delivery	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3

Choose one:

HEAL 2400	General Safety	3
or HEAL 2500	Personal Health	
or HEAL 2600	Mental Health	

General Electives (19 hours)

**Total Hours 25**

**Health Sciences - Social Determinants of Health Concentration, BA Requirements**

**Code Title Hours**

**Skills Area (10 hours) 10**

ENGL 1110	College Composition I	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	
MATH 2600	Introduction To Statistics <sup>Requires MATH 1200 minimum C- or ACT/SAT or Placement Test</sup>	
HHS 1010	Introduction to Health Sciences I with Orientation	
Arts/Humanities Core (6 hours from UToledo Core Curriculum)		6
Social Sciences Core (6 hours) (satisfies social sciences core curriculum requirement)		6
PSY 1010	Principles Of Psychology	
SOC 1010	Introduction To Sociology	
Natural Sciences Core (7 hours) (satisfies natural sciences core curriculum requirement)		7
EXSC 1460	Fundamentals of Anatomy and Physiology Lab <sup>C or better</sup>	

EXSC 1560	Fundamentals of Anatomy and Physiology <sup>C or better</sup>	
Natural Sciences Course		3
Core Electives (9 hours) (Math, Humanities, Social Sciences, and/or Natural Sciences from the UToledo Core Curriculum)		9
Multicultural Studies (6 hours from UToledo core curriculum)		6

**Code Title Hours**

**Required Major Courses (32 hours) <sup>C or better</sup>**

HHS 1020	Introduction to Health Sciences II <sup>C or better</sup>	2
HHS 3100	Introduction to Social Determinants of Health <sup>C or better</sup>	3

HHS 3600	Foundations of Evidence-Based Practice in Health Science <sup>C or better</sup>	3
HHS 4800	Health Sciences Capstone I <sup>C or better</sup>	3
HHS 4810	Health Sciences Capstone II <sup>C or better</sup>	3
COUN 3000	Cultural Competence in Health and Human Services Professions <sup>C or better</sup>	3
LGL 4230	Health Care And The Law <sup>C or better</sup>	3
HEAL 4800	Public Health Research And Statistics <sup>C or better</sup>	3
HEAL 3600	Prevention And Control Of Disease <sup>C or better</sup>	3
HIM 2300	Healthcare Resources, Payers <sup>C or better</sup>	3
HEAL 4960	Political Determinants of Health <sup>C or better</sup>	3

**Total Hours 32**

**Code Title Hours**

**Concentration in Social Determinants of Health: Supporting Electives 18 (18 hours) (tailor this to suit area of professional interest)**

ANTH 3330	Food, Health, Society	
ANTH 4760	Medical Anthropology	
COMM 2500	Social Media I: Introduction to Social Media	
COMM 3500	Social Media II: Social Media Communication Strategies	
COMM 2600	Public Presentations	
COMM 2820	Group Communication	
COMM 2830	Organizational Communication	
COMM 3760	Health Communication	
COMM 4260	Communication in Non-Profit Organizations	
COMM 4830	Gender, Culture & Communication	
COUN 3140	Substance Abuse Prevention And Community Programming	
COUN 4080	Essentials Of Helping Relationships	
COUN 4240	Substance Abuse Treatment Techniques	
CRIM 2250	Juvenile Justice	
CRIM 3250	Women and Crime	
CRIM 3300	Sex Crimes	
CRIM 4000	Narcotics Policy and Enforcement	
DST 2020	Introduction to Disability Studies	
EEES 1050	Geological Hazards And The Environment	
EEES 1170	Microbes And Society	
EDP 1500		



EDP 4210	
EDP 4220	Adolescent Behavior And Development
EDP 4230	
EFSB 4690	Strategic Management of Innovation
EXSC 2580	Human Pathophysiology For Health Care
GEPL 3610	Conservation And Resources
GEPL 4110	Geographic Information Systems
HCAR 4360	Quality Improvement In Health Care
HHS 4100	Foundations of Healthcare Delivery
HEAL 1800	Medical Terminology
HEAL 2000	Foundations Of Health Education
HEAL 2400	General Safety
HEAL 2500	Personal Health
HEAL 2600	Mental Health
HEAL 2100	Living Well
HEAL 2700	Introduction to Public Health
HEAL 2800	Principles Of Nutrition
HEAL 3500	Environmental Health
HHS 2500	Data Science I
HHS 4500	Data Science II
HEAL 4900	Health Education Seminar
HON 3010	Community Engagement
HIM 4500	Health Informatics & Information Management
HURM 4640	Benefits, Health & Wellness
LST 2010	Law And Social Thought
MGMT 3630	Conflict Management: Mediation & Negotiations
MGMT 3700	Best Practices in Diversity Leadership
MGMT 3770	Ethics In Leadership And Management
MGMT 4210	
MGMT 4330	Leading Organizational Change and Development
MGMT 4780	Leading and Managing People
OCCT 2550	PURPOSEFUL LIVING ROLE OF OCCUPATIONAL THERAPY
PSC 3410	Principles of Public Policy
PSC 3800	Sexual Politics
PSC 4220	Advocacy Groups in US Politics
PJS 1000	Introduction to Peace and Justice Studies
PJS 2000	Nonviolence and Conflict Transformation Theory and Practice
PSY 2200	Abnormal Psychology
PSY 2510	Lifespan Developmental Psychology
PSY 2700	Social Psychology
PSY 3300	Organizational Development Theory and Principles
PSY 3310	OD Practices
PSY 3730	Stereotyping, Prejudice, & Discrimination
PSY 3740	Health Psychology
RCRT 3310	Inclusion and Recreational Therapy Services
RCRT 4720	Introduction To Therapeutic Recreation
SOC 2150	The Family and Society
SOC 2500	Women's Roles: A Global Perspective

SOC 2640	Race, Class, And Gender
SOC 2900	African American Culture
SOC 3640	Social Inequality
SOC 4100	Community Organizing and Development
SOC 4160	Health And Gender
SOC 4180	Medical Sociology
SOC 4190	
SOC 4340	Population And Society
SOCW 3080	Women In Poverty
SOCW 3520	Human Animal Interaction, Health and Wellness
TSOC 2000	Diversity In Contemporary Society
WGST 2880	Contemporary U.S. Queer Cultures
WGST 3200	Issues In Lesbian, Transgender, Bisexual And Gay Communities
General Electives (26 hours)	
26	

- Health Sciences - Pre-Occupational Therapy Concentration, BA (p. 296)
- Health Sciences - Social Determinants of Health Concentration, BA (p. 297) (p. )

### Health Sciences - Pre-Occupational Therapy Concentration, BA Plan of Study

First Term	Hours	
ENGL 1110	College Composition I	3
MATH 2600	Introduction To Statistics	3
HEAL 1800	Medical Terminology	3
PSY 1010	Principles Of Psychology	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>
Second Term	Hours	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
BIOL 1120	Survey Of Biology	3
SOC 1010	Introduction To Sociology	3
HHS 1020	Introduction to Health Sciences II	2
Elective		3
<b>Hours</b>		<b>14</b>
Third Term	Hours	
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
Arts/Humanities Core (ART 1040 recommended)		3
HHS 3100	Introduction to Social Determinants of Health	3
OCCT 2550	PURPOSEFUL LIVING ROLE OF OCCUPATIONAL THERAPY	3
Elective		3
<b>Hours</b>		<b>16</b>



**Fourth Term**

EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
Arts/Humanities Core (COCA 2000 recommended)		3
DST 2020	Introduction to Disability Studies	3
COUN 3000	Cultural Competence in Health and Human Services Professions	3
Select one of the following:		3
HEAL 2400	General Safety	
HEAL 2500	Personal Health	
HEAL 2600	Mental Health	

**Hours 16**

**Fifth Term**

HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
Natural Science Core (PHYS 1300 recommended)		3
ANTH 2800	Cultural Anthropology	3
HEAL 3600	Prevention And Control Of Disease	3
PSY 2200	Abnormal Psychology	3

**Hours 15**

**Sixth Term**

HIM 2300	Healthcare Resources, Payers	3
HEAL 4800	Public Health Research And Statistics	3
HHS 4100	Foundations of Healthcare Delivery	3
PSY 2510	Lifespan Developmental Psychology	3
Elective		3

**Hours 15**

**Seventh Term**

HHS 4800	Health Sciences Capstone I	3
LGL 4230	Health Care And The Law	3
COMM 1010 or COMM 2840	Comm Principles And Practices or Interpersonal Communication	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
Elective		3

**Hours 15**

**Eighth Term**

HHS 4810	Health Sciences Capstone II	3
HEAL 4960	Political Determinants of Health	3
Elective		3
Elective		4

**Hours 13**

**Total Hours 120**

**Health Sciences - Social Determinants of Health Concentration, BA Plan of Study**

**First Term**

**Hours**

HHS 1010	Introduction to Health Sciences I with Orientation	1
ENGL 1110	College Composition I	3

EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
EXSC 1560	Fundamentals of Anatomy and Physiology	3
Arts/Humanities Core		3
Diversity of US OR Non-Diversity of US		3
Elective		2

**Hours 16**

**Second Term**

HHS 1020	Introduction to Health Sciences II	2
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
SOC 1010	Introduction To Sociology	3
Supporting Elective		3
Elective		3

**Hours 14**

**Third Term**

HHS 3100	Introduction to Social Determinants of Health	3
MATH 2600	Introduction To Statistics	3
Natural Sciences Core		3
Elective		3
Elective		3

**Hours 15**

**Fourth Term**

COUN 3000	Cultural Competence in Health and Human Services Professions	3
HIM 2300	Healthcare Resources, Payers	3
Core Elective		3
Core Elective		3
Arts/Humanities Core		3

**Hours 15**

**Fifth Term**

HEAL 3600	Prevention And Control Of Disease	3
PSY 1010	Principles Of Psychology	3
Diversity of US OR Non-Diversity of US		3
Supportive Elective		3
Elective		3

**Hours 15**

**Sixth Term**

HEAL 4800	Public Health Research And Statistics	3
Core Elective		3
Supporting Elective		3
Elective		3
Elective		3

**Hours 15**

**Seventh Term**

HHS 4800	Health Sciences Capstone I	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
Supporting Elective		3



Supporting Elective		3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Eighth Term</b>		
HHS 4810	Health Sciences Capstone II	3
LGL 4230	Health Care And The Law	3
HEAL 4960	Political Determinants of Health	3
Supporting Elective		3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>120</b>

- Health Sciences - Pre-Occupational Therapy Concentration, BA (p. 298)
- Health Sciences - Social Determinants of Health Concentration, BA (p. 298)

### Health Sciences - Pre-Occupational Therapy Concentration, BA Learning Outcomes

- Develop the appropriate written and oral skills necessary for graduate study or a professional career, including the ability to present oneself in a professional manner
- Demonstrate knowledge of human cultures and the physical and natural world as it relates to individual and population health
- Describe the role of cultural humility and cultural responsiveness in health professions
- Demonstrate the ability to work collaboratively with others
- Identify specific behaviors that promote or compromise health
- Explain how to locate, appraise and utilize evidence to positively impact health
- Demonstrate knowledge of research and statistical techniques commonly employed in the health fields
- Describe the influence of socio-identities (e.g., race, ethnicity, religion, gender, socioeconomic status, sexual orientation, ability) on individuals' functioning, concerns, and the helping process in the context of health and human service professions
- Demonstrate knowledge of the social welfare institution, its history, relation to social values, social welfare laws and programs, and the systems characteristic of service delivery
- Identify health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations
- Articulate the etiology, pathogenesis, and prevention and control of acute and chronic diseases
- Describe the roles of professionals in meeting standards of regulatory agencies and voluntary organizations in health systems
- Describe multiple aspects of the social environment and identify how social determinants of health contribute to healthcare disparities
- Develop foundational knowledge for health professionals
- Identify careers in occupational therapy, how to pursue them, how to meet regulatory, and demonstrate foundational knowledge for study in pre-occupational therapy concentration.

### Health Sciences - Social Determinants of Health Concentration, BA Learning Outcomes

- Develop the appropriate written and oral skills necessary for graduate study or a professional career, including the ability to present oneself in a professional manner
- Demonstrate knowledge of human cultures and the physical and natural world as it relates to individual and population health
- Describe the role of cultural humility and cultural responsiveness in health professions
- Demonstrate the ability to work collaboratively with others
- Identify specific behaviors that promote or compromise health
- Explain how to locate, appraise and utilize evidence to positively impact health
- Demonstrate knowledge of research and statistical techniques commonly employed in the health fields
- Describe the influence of socio-identities (e.g., race, ethnicity, religion, gender, socioeconomic status, sexual orientation, ability) on individuals' functioning, concerns, and the helping process in the context of health and human service professions
- Demonstrate knowledge of the social welfare institution, its history, relation to social values, social welfare laws and programs, and the systems characteristic of service delivery
- Identify health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations
- Articulate the etiology, pathogenesis, and prevention and control of acute and chronic diseases
- Describe the roles of professionals in meeting standards of regulatory agencies and voluntary organizations in health systems
- Describe multiple aspects of the social environment and identify how social determinants of health contribute to healthcare disparities
- Develop foundational knowledge for health professionals

## BS in Health Sciences

The University of Toledo offers a bachelor of science degree in health sciences. This degree requires 120 credit hours for graduation. Health sciences provides students with an introduction to a variety of health professions and broad prerequisite knowledge. Through its mix of sciences and interdisciplinary core courses, the degree offers students rigorous and diverse content that will prepare them for success in health and healthcare related careers or professional programs upon graduation. The curriculum offers several concentrations that include the most commonly required prerequisite courses as well as contemporary knowledge, experiences, and perspectives that will prepare students to provide high quality care to future patients and communities.

The Human Performance and Fitness Promotion concentration is specifically designed to give students an in-depth understanding of how the human body responds and adapts to exercise and how exercise can be used to promote health and wellness. As our healthcare systems evolve and extend their focus beyond treating disease and illness to treating people and communities and preventing disease and disability, the inclusion of professionals trained in the science of exercise will be important. Graduates will be eligible to sit for certification programs

offered by such organizations as the American College of Sports Medicine or the National Strength and Conditioning Association.

The Pre-Athletic Training and Pre-Physical Therapy concentration prepares students for admission to graduate entry-level programs in athletic training or physical therapy.

The Pre-Medical Professions concentration prepares students for admission into medical school and other health professions including dentistry, optometry, transplantation and donation sciences, and veterinary science.

The Pre-Physician Assistant concentration is designed for students pursuing admission to physician assistant graduate programs.

- Health Sciences - Human Performance & Fitness Promotion Concentration, BS (p. 299)
- Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS (p. 300)
- Health Sciences - Pre-Medical Professions Concentration, BS (p. 300)
- Health Sciences - Pre-Physician Assistant Concentration, BS (p. 301)

### Health Sciences - Human Performance & Fitness Promotion Concentration, BS Requirements

Code	Title	Hours
<b>Skills Area (12-13 hours)</b>		<b>12-13</b>
ENGL 1110	College Composition I	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	
MATH 1340	College Algebra And Trigonometry	
	or MATH 133: College Algebra and Trigonometry & MATH 133	
HHS 1010	Introduction to Health Sciences I with Orientation	

Code	Title	Hours
<b>Social Sciences (6 hours) (satisfies social sciences core curriculum requirement)</b>		<b>6</b>
SOC 1010	Introduction To Sociology	
PSY 1010	Principles Of Psychology	

Code	Title	Hours
<b>Humanities/Fine Arts (6 hours from UToledo Core Curriculum)</b>		<b>6</b>

Code	Title	Hours
<b>Natural Sciences (19 hours) (satisfies natural sciences core curriculum requirement)</b>		
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
EXSC 2460	Human Anatomy And Physiology I Lab	1

EXSC 2560	Anatomy and Physiology I	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
<b>Total Hours</b>		<b>19</b>

Code	Title	Hours
<b>Multicultural Studies (3 hours from UToledo core curriculum)</b>		<b>3</b>

Code	Title	Hours
<b>Required Major Courses (33 hours) <sup>C or better</sup></b>		
HHS 1020	Introduction to Health Sciences II <sup>C or better</sup>	2
HHS 3100	Introduction to Social Determinants of Health <sup>C or better</sup>	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science <sup>C or better</sup>	3
HHS 4100	Foundations of Healthcare Delivery <sup>C or better</sup>	3
COUN 3000	Cultural Competence in Health and Human Services Professions <sup>C or better</sup>	3
EXSC 2470	Human Anatomy And Physiology II Lab <sup>C or better</sup>	1
EXSC 2570	Human Anatomy and Physiolo II <sup>C or better</sup>	3
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology <sup>C or better</sup>	3
LGL 4230	Health Care And The Law <sup>C or better</sup>	3
PHIL 3370	Medical Ethics <sup>C or better</sup>	3
MATH 2600	Introduction To Statistics <sup>C or better</sup>	3
<b>Total Hours</b>		<b>33</b>

Code	Title	Hours
<b>Human Performance Fitness Promotion (29 hours) Concentration</b>		
EXSC 3520	Applied Exercise Physiology <sup>C or better</sup>	3
EXSC 3530	Applied Exercise Physiology Laboratory <sup>C or better</sup>	1
EXSC 3680	Sport and Exercise Pharmacology <sup>C or better</sup>	3
EXSC 3830	Principles of Strength Conditioning <sup>C or better</sup>	3
EXSC 3850	Cardiac Dysrhythmia Interpretation <sup>C or better</sup>	3
EXSC 3860	Cardiac Dysrhythmia Lab	1
EXSC 4830	Principles of Endurance Conditioning <sup>C or better</sup>	3
EXSC 4850	Clinical Exercise Testing <sup>C or better</sup>	3
EXSC 4860	Clinical Exercise Testing Lab <sup>C or better</sup>	1
EXSC 4140	Fitness Internship I <sup>C or better</sup>	4
EXSC 4840	Fitness Internship II <sup>C or better</sup>	4
<b>Total Hours</b>		<b>29</b>

Code	Title	Hours
<b>Supplemental Major Course select one (3-4 hours)</b>		
HEAL 4700	Nutritional Science	3
or EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	
or EXSC 4540 & EXSC 4550	Applied Biomechanics and Applied Biomechanics Lab	



Code	Title	Hours
<b>General Electives to meet 120 credit hours and fulfill upper-level course requirements</b>		

### Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS Requirements

Code	Title	Hours
<b>Skills Area (12-13 hours)</b>		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1340 or MATH 1320 & MATH 1330	College Algebra And Trigonometry College Algebra and Trigonometry	5
HHS 1010	Introduction to Health Sciences I with Orientation	1

Code	Title	Hours
<b>Social Sciences (6 hours) (satisfies social sciences core curriculum requirement)</b>		
SOC 1010	Introduction To Sociology	3
PSY 1010	Principles Of Psychology	3

Code	Title	Hours
<b>Humanities/Fine Arts (6 hours from UToledo Core Curriculum)</b>		

Code	Title	Hours
<b>Natural Sciences (19 hours) (satisfies natural sciences core curriculum requirement)</b>		

BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
EXSC 2460	Human Anatomy And Physiology I Lab <sup>C or better</sup>	1
EXSC 2560	Anatomy and Physiology I <sup>C or better</sup>	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1

Code	Title	Hours
<b>Multicultural Studies (3 hours from UToledo core curriculum)</b>		

Code	Title	Hours
<b>Required Major Courses (33 hours) <sup>C or better</sup></b>		
HHS 1020	Introduction to Health Sciences II <sup>C or better</sup>	2
HHS 3100	Introduction to Social Determinants of Health <sup>C or better</sup>	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science <sup>C or better</sup>	3
HHS 4100	Foundations of Healthcare Delivery <sup>C or better</sup>	3
COUN 3000	Cultural Competence in Health and Human Services Professions <sup>C or better</sup>	3
EXSC 2470	Human Anatomy And Physiology II Lab <sup>C or better</sup>	1

EXSC 2570	Human Anatomy and Physiol II <sup>C or better</sup>	3
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology <sup>C or better</sup>	3
LGL 4230	Health Care And The Law <sup>C or better</sup>	3
PHIL 3370	Medical Ethics <sup>C or better</sup>	3
MATH 2600	Introduction To Statistics <sup>C or better</sup>	3

Code	Title	Hours
<b>Pre-Athletic and Pre-Physical Therapy (26 hours) Concentration</b>		

BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
EXSC 3520	Applied Exercise Physiology <sup>C or better</sup>	3
EXSC 3530	Applied Exercise Physiology Laboratory <sup>C or better</sup>	1
EXSC 4540	Applied Biomechanics	3
EXSC 4550	Applied Biomechanics Lab	1
PHYS 2080	General Physics II	5
Select one from the following:		3
PSY 2200	Abnormal Psychology	
PSY 2510	Lifespan Developmental Psychology	
PSY 2700	Social Psychology	

General Electives		12
<b>Total Hours</b>		<b>38</b>

Code	Title	Hours
<b>Supplemental Major Course (select one) 3 hours</b>		
HEAL 4700 or EXSC 4640	Nutritional Science Neurological And Pathological Foundations Of Rehabilitation	3

Code	Title	Hours
<b>General Electives to meet 120 credit hours and fulfill upper-level course requirements</b>		

### Health Sciences - Pre-Medical Professions Concentration, BS Requirements

Code	Title	Hours
<b>Skills Area (12-13 hours)</b>		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1340 or MATH 1320 & MATH 1330	College Algebra And Trigonometry College Algebra and Trigonometry	5
HHS 1010	Introduction to Health Sciences I with Orientation	1

Code	Title	Hours
<b>Social Sciences (6 hours) (satisfies social sciences core curriculum requirement)</b>		

SOC 1010	Introduction To Sociology	3
PSY 1010	Principles Of Psychology	3

**Code Title Hours**  
**Humanities/Fine Arts (6 hours from UToledo Core Curriculum)**

**Code Title Hours**  
**Natural Sciences (19 hours) (satisfies natural sciences core curriculum requirement)**

BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
EXSC 2460	Human Anatomy And Physiology I Lab	1
EXSC 2560	Anatomy and Physiology I	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1

**Code Title Hours**  
**Multicultural Studies (3 hours from UToledo core curriculum)**

**Code Title Hours**  
**Required Major Courses (33 hours)**

HHS 1020	Introduction to Health Sciences II <sup>C or better</sup>	2
HHS 3100	Introduction to Social Determinants of Health <sup>C or better</sup>	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science <sup>C or better</sup>	3
HHS 4100	Foundations of Healthcare Delivery <sup>C or better</sup>	3
COUN 3000	Cultural Competence in Health and Human Services Professions <sup>C or better</sup>	3
EXSC 2470	Human Anatomy And Physiology II Lab <sup>C or better</sup>	1
EXSC 2570	Human Anatomy and Physiol II <sup>C or better</sup>	3
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology <sup>C or better</sup>	3
LGL 4230	Health Care And The Law <sup>C or better</sup>	3
PHIL 3370	Medical Ethics <sup>C or better</sup>	3
MATH 2600	Introduction To Statistics <sup>C or better</sup>	3

**Total Hours 33**

**Code Title Hours**  
**Pre-Medical (26 hours) Concentration**

BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
CHEM 2410	Organic Chemistry I	3
CHEM 2420	Organic Chemistry II	3

CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
PHYS 2080	General Physics II	5
CHEM 3510	Biochemistry I	3

**Total Hours 26**

**Code Title Hours**

**Supplemental Major Course (select one) 3-4 hours**

HEAL 4700	Nutritional Science	3
or EXSC 3520 & EXSC 3530	Applied Exercise Physiology and Applied Exercise Physiology Laboratory	
or EXSC 4540 & EXSC 4550	Applied Biomechanics and Applied Biomechanics Lab	
or EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	

**Code Title Hours**

**General Electives to meet 120 credit hours and fulfill upper-level course requirements**

**Health Sciences - Pre-Physician Assistant Concentration, BS Requirements**

**Code Title Hours**

**Skills Area (12-13 hours)**

ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1340	College Algebra And Trigonometry	5
or MATH 1320 & MATH 1330	College Algebra and Trigonometry	
HHS 1010	Introduction to Health Sciences I with Orientation	1

**Code Title Hours**

**Social Sciences (6 hours) (satisfies social sciences core curriculum requirement)**

SOC 1010	Introduction To Sociology	3
PSY 1010	Principles Of Psychology	3

**Code Title Hours**

**Humanities/Fine Arts (6 hours from UToledo Core Curriculum)**

**Code Title Hours**

**Natural Sciences (19 hours) (satisfies natural sciences core curriculum requirement)**

BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
EXSC 2460	Human Anatomy And Physiology I Lab <sup>B- or better for PA program</sup>	1
EXSC 2560	Anatomy and Physiology I <sup>B- or better for PA program</sup>	3



PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1

**Code Title Hours**  
**Multicultural Studies (3 hours from UToledo core curriculum)**

**Code Title Hours**  
**Required Major Courses (33 hours)**

HHS 1020	Introduction to Health Sciences II <sup>C or better</sup>	2
HHS 3100	Introduction to Social Determinants of Health <sup>C or better</sup>	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science <sup>C or better</sup>	3
HHS 4100	Foundations of Healthcare Delivery <sup>C or better</sup>	3
COUN 3000	Cultural Competence in Health and Human Services Professions <sup>C or better</sup>	3
EXSC 2470	Human Anatomy And Physiology II Lab <sup>C or better</sup>	1
EXSC 2570	Human Anatomy and Physiol II <sup>C or better</sup>	3
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology <sup>C or better</sup>	3
LGL 4230	Health Care And The Law <sup>C or better</sup>	3
PHIL 3370	Medical Ethics <sup>C or better</sup>	3
MATH 2600	Introduction To Statistics <sup>C or better</sup>	3

**Total Hours 33**

**Code Title Hours**  
**Pre-Physician Assistant (27 hours) Concentration**

BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
PSY 2510	Lifespan Developmental Psychology	3
BIOL 3010	Molecular Genetics	3
BIOL 3030	Cell Biology	3
BIOL 4030	Microbiology	3
BIOL 4040	Microbiology Laboratory	1
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1

**Total Hours 27**

**Code Title Hours**  
**Supplemental Major Course (select one) 3-4 hours**

HEAL 4700	Nutritional Science	3
or EXSC 3520 & EXSC 3530	Applied Exercise Physiology and Applied Exercise Physiology Laboratory	
or EXSC 4540 & EXSC 4550	Applied Biomechanics and Applied Biomechanics Lab	
or EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	

**Code Title Hours**  
**General Electives to meet 120 credit hours and fulfill upper-level course requirements**

- Health Sciences - Human Performance & Fitness Promotion Concentration, BS (p. 302)
- Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS (p. 303)
- Health Sciences - Pre-Medical Professions Concentration, BS (p. 304)
- Health Sciences - Pre-Physician Assistant Concentration, BS (p. 304)

**Health Sciences - Human Performance & Fitness Promotion Concentration, BS Plan of Study**

<b>First Term</b>		<b>Hours</b>
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
ENGL 1110	College Composition I	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
MATH 1340	College Algebra And Trigonometry	5
Elective		3
<b>Hours</b>		<b>17</b>

<b>Second Term</b>		<b>Hours</b>
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HEAL 1800	Medical Terminology	3
HHS 1020	Introduction to Health Sciences II	2
PSY 1010	Principles Of Psychology	3
<b>Hours</b>		<b>15</b>

<b>Third Term</b>		<b>Hours</b>
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
HHS 3100	Introduction to Social Determinants of Health	3
Diversity of US OR Non-Diversity of US		3
<b>Hours</b>		<b>15</b>

<b>Fourth Term</b>		<b>Hours</b>
EXSC 3520	Applied Exercise Physiology	3
EXSC 3530	Applied Exercise Physiology Laboratory	1
COUN 3000	Cultural Competence in Health and Human Services Professions	3
SOC 1010	Introduction To Sociology	3
Arts/Humanities Core		3

Elective		3
<b>Hours</b>		<b>16</b>
<b>Fifth Term</b>		
EXSC 3830	Principles of Strength Conditioning	3
EXSC 3850	Cardiac Dysrhythmia Interpretation	3
EXSC 3860	Cardiac Dysrhythmia Lab	1
EXSC 4830	Principles of Endurance Conditioning	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
EXSC 4850	Clinical Exercise Testing	3
EXSC 4860	Clinical Exercise Testing Lab	1
EXSC 3680	Sport and Exercise Pharmacology	3
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
Elective		3
<b>Hours</b>		<b>16</b>
<b>Seventh Term</b>		
EXSC 4140	Fitness Internship I	4
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
EXSC 2580	Human Pathophysiology For Health Care	3
Supplemental Major Course		3-4
<b>Hours</b>		<b>13-14</b>
<b>Eighth Term</b>		
EXSC 4840	Fitness Internship II	4
US Diversity OR Non-US Diversity		3
LGL 4230	Health Care And The Law	3
PHIL 3370	Medical Ethics	3
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>120-121</b>

### Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS Plan of Study

<b>First Term</b>		<b>Hours</b>
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
HHS 1010	Introduction to Health Sciences I with Orientation	1
ENGL 1110	College Composition I	3
MATH 1340	College Algebra And Trigonometry	5
<b>Hours</b>		<b>14</b>
<b>Second Term</b>		
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4

BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
PSY 1010	Principles Of Psychology	3
HHS 1020	Introduction to Health Sciences II	2
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
<b>Arts/Humanities Core</b>		<b>3</b>
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
SOC 1010	Introduction To Sociology	3
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
HHS 3100	Introduction to Social Determinants of Health	3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
HEAL 1800	Medical Terminology	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
COUN 3000	Cultural Competence in Health and Human Services Professions	3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
EXSC 3520	Applied Exercise Physiology	3
EXSC 3530	Applied Exercise Physiology Laboratory	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
PSY 2200	Abnormal Psychology (or PSY 2510 or PSY 2700)	3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
<b>Arts/Humanities Core</b>		<b>3</b>
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
HHS 4100	Foundations of Healthcare Delivery	3
EXSC 2580	Human Pathophysiology For Health Care	3
<b>Hours</b>		<b>14</b>
<b>Seventh Term</b>		
MATH 2600	Introduction To Statistics	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
PHIL 3370	Medical Ethics	3
EXSC 4540	Applied Biomechanics	3
EXSC 4550	Applied Biomechanics Lab	1



Elective	3
<b>Hours</b>	<b>16</b>
<b>Eighth Term</b>	
LGL 4230 Health Care And The Law	3
Diversity of US OR Non-Diversity of US	3
Supplemental Major Course	3
Elective	3
Elective	3
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>120</b>

### Health Sciences - Pre-Medical Professions Concentration, BS Plan of Study

	Hours
<b>First Term</b>	
BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1230 General Chemistry I	4
CHEM 1280 General Chemistry Lab I	1
HHS 1010 Introduction to Health Sciences I with Orientation	1
MATH 1340 College Algebra And Trigonometry	5
<b>Hours</b>	<b>16</b>
<b>Second Term</b>	
BIOL 2150 Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160 Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1240 General Chemistry II	4
CHEM 1290 General Chemistry Lab II	1
HHS 1020 Introduction to Health Sciences II	2
ENGL 1110 College Composition I	3
<b>Hours</b>	<b>15</b>
<b>Third Term</b>	
CHEM 2410 Organic Chemistry I	3
CHEM 2460 Organic Chemistry Laboratory I for Non-Majors	1
EXSC 2560 Anatomy and Physiology I	3
EXSC 2460 Human Anatomy And Physiology I Lab	1
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
HHS 3100 Introduction to Social Determinants of Health	3
<b>Hours</b>	<b>14</b>
<b>Fourth Term</b>	
CHEM 2420 Organic Chemistry II	3
CHEM 2470 Organic Chemistry Laboratory II for Non-Majors	1
EXSC 2570 Human Anatomy and Physiol II	3
EXSC 2470 Human Anatomy And Physiology II Lab	1

COUN 3000 Cultural Competence in Health and Human Services Professions	3
PSY 1010 Principles Of Psychology	3
<b>Hours</b>	<b>14</b>
<b>Fifth Term</b>	
CHEM 3510 Biochemistry I	3
PHYS 2070 General Physics I	4
PHYS 2075 General Physics I - Lab	1
SOC 1010 Introduction To Sociology	3
HEAL 1800 Medical Terminology	3
<b>Hours</b>	<b>14</b>
<b>Sixth Term</b>	
PHYS 2080 General Physics II	5
HHS 4100 Foundations of Healthcare Delivery	3
Non-US Diversity or US Diversity Elective	3
Elective	3
EXSC 2580 Human Pathophysiology For Health Care	3
<b>Hours</b>	<b>17</b>
<b>Seventh Term</b>	
MATH 2600 Introduction To Statistics	3
HHS 3600 Foundations of Evidence-Based Practice in Health Science	3
PHIL 3370 Medical Ethics	3
Elective	3
Supplemental Major Course	3-4
<b>Hours</b>	<b>15-16</b>
<b>Eighth Term</b>	
LGL 4230 Health Care And The Law	3
Arts/Humanities Core	3
Elective	3
Elective	3
Non-US Diversity or US Diversity Elective	3
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>120-121</b>

### Health Sciences - Pre-Physician Assistant Concentration, BS Plan of Study

	Hours
<b>First Term</b>	
BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1230 General Chemistry I	4
CHEM 1280 General Chemistry Lab I	1
HHS 1010 Introduction to Health Sciences I with Orientation	1
MATH 1340 College Algebra And Trigonometry	5
<b>Hours</b>	<b>16</b>



**Second Term**

BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
HHS 1020	Introduction to Health Sciences II	2
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>15</b>

**Third Term**

CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 3100	Introduction to Social Determinants of Health	3
<b>Hours</b>		<b>14</b>

**Fourth Term**

BIOL 3010	Molecular Genetics	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 1800	Medical Terminology	3
COUN 3000	Cultural Competence in Health and Human Services Professions	3
PSY 1010	Principles Of Psychology	3
<b>Hours</b>		<b>16</b>

**Fifth Term**

BIOL 3030	Cell Biology	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
PSY 2510	Lifespan Developmental Psychology	3
SOC 1010	Introduction To Sociology	3
<b>Hours</b>		<b>14</b>

**Sixth Term**

BIOL 4030	Microbiology	3
BIOL 4040	Microbiology Laboratory	1
HHS 4100	Foundations of Healthcare Delivery	3
EXSC 2580	Human Pathophysiology For Health Care	3
Elective		3
Non-US Diversity /US Diversity Elective		3
<b>Hours</b>		<b>16</b>

**Seventh Term**

MATH 2600	Introduction To Statistics	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
PHIL 3370	Medical Ethics	3

Elective	3	
Supplemental Major Course	3-4	
<b>Hours</b>		<b>15-16</b>

**Eighth Term**

LGL 4230	Health Care And The Law	3
Arts/Humanities Core		3
Non-US Diversity /US Diversity Elective		3
Elective		3
Elective		2
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>120-121</b>

- Health Sciences - Human Performance & Fitness Promotion Concentration, BS (p. 305)
- Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS (p. 306)
- Health Sciences - Pre-Medical Professions Concentration, BS (p. 306)
- Health Sciences - Pre-Physician Assistant Concentration, BS (p. 306)

**Health Sciences - Human Performance & Fitness Promotion Concentration, BS Learning Outcomes**

- Identify careers for a health science degree graduate, how to pursue them and how to meet regulatory standards
- Develop foundational healthcare knowledge and concepts for entry into graduate healthcare programs or professional career in health-related fields
- Identify the social determinants of health and their impact on health disparities
- Describe cultural responsiveness and humility and their role in delivering patient and client-centered care in an evolving healthcare landscape
- Explain ethical responsibility in healthcare and its role in patient and client-centered care
- Identify health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations
- Explain how to locate, appraise and utilize evidence to positively impact health
- Describe healthcare informatics and how it can be used to ensure quality improvement and improve health outcomes
- Describe interprofessional collaborative practice and its role in optimizing patient and client care
- Describe multiple aspects of the social environment and identify how social determinants of health contribute to healthcare disparities
- Develop foundational knowledge and skills to prepare students to work in the human performance and fitness promotion fields



### Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS Learning Outcomes

- Identify careers for a health science degree graduate, how to pursue them and how to meet regulatory standards
- Develop foundational healthcare knowledge and concepts for entry into graduate healthcare programs or professional career in health-related fields
- Identify the social determinants of health and their impact on health disparities
- Describe cultural responsiveness and humility and their role in delivering patient and client-centered care in an evolving healthcare landscape
- Explain ethical responsibility in healthcare and its role in patient and client-centered care
- Identify health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations
- Explain how to locate, appraise and utilize evidence to positively impact health
- Describe healthcare informatics and how it can be used to ensure quality improvement and improve health outcomes
- Describe interprofessional collaborative practice and its role in optimizing patient and client care
- Describe multiple aspects of the social environment and identify how social determinants of health contribute to healthcare disparities
- Develop foundational knowledge for study in the pre-athletic training and pre-physical therapy concentration

### Health Sciences - Pre-Medical Professions Concentration, BS Learning Outcomes

- Identify careers for a health science degree graduate, how to pursue them and how to meet regulatory standards
- Develop foundational healthcare knowledge and concepts for entry into graduate healthcare programs or professional career in health-related fields
- Identify the social determinants of health and their impact on health disparities
- Describe cultural responsiveness and humility and their role in delivering patient and client-centered care in an evolving healthcare landscape
- Explain ethical responsibility in healthcare and its role in patient and client-centered care
- Identify health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations
- Explain how to locate, appraise and utilize evidence to positively impact health
- Describe healthcare informatics and how it can be used to ensure quality improvement and improve health outcomes

- Describe interprofessional collaborative practice and its role in optimizing patient and client care
- Describe multiple aspects of the social environment and identify how social determinants of health contribute to healthcare disparities
- Develop foundational knowledge for study in the pre-medical concentration

### Health Sciences - Pre-Physician Assistant Concentration, BS Learning Outcomes

- Identify careers for a health science degree graduate, how to pursue them and how to meet regulatory standards
- Develop foundational healthcare knowledge and concepts for entry into graduate healthcare programs or professional career in health-related fields
- Identify the social determinants of health and their impact on health disparities
- Describe cultural responsiveness and humility and their role in delivering patient and client-centered care in an evolving healthcare landscape
- Explain ethical responsibility in healthcare and its role in patient and client-centered care
- Identify health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations
- Explain how to locate, appraise and utilize evidence to positively impact health
- Describe healthcare informatics and how it can be used to ensure quality improvement and improve health outcomes
- Describe interprofessional collaborative practice and its role in optimizing patient and client care
- Describe multiple aspects of the social environment and identify how social determinants of health contribute to healthcare disparities
- Develop foundational knowledge for study in pre-physician assistant concentration.

## BS in Recreation Therapy

The University of Toledo offers a bachelor of science degree in recreation therapy (RECT). This degree requires 120 credit hours for graduation. The baccalaureate RECT program is the only undergraduate recreation therapy program in the State of Ohio and is accredited by the Council on Accreditation of Parks, Recreation, Tourism and Related Professions (COAPRT). This program meets professional standards set by the National Council for Therapeutic Recreation Certification (NCTRC) and the American Therapeutic Recreation Association (ATRA). This program can be completed online.

Students enrolling in the recreation therapy program receive an education designed to prepare them for employment in the areas of physical rehabilitation, psychiatric rehabilitation, geriatric services, pediatric services, camps for individuals with disabilities, community recreation for individuals with disabilities, and centers for intellectual deficits/developmental disabilities.

Students graduating from the RECT program will have met the educational and clinical eligibility requirements to sit for the Certified Therapeutic Recreation Specialist (CTRS) examination as administered by the National Council for Therapeutic Recreation Certification.

Students wishing to major in the recreation therapy program complete a pre-professional course sequence their freshman and sophomore years consisting of undergraduate core curriculum courses, pre-recreation therapy curriculum courses and recreation therapy support courses. Upon acceptance into the professional sequence entering their junior year, students complete 46 credit hours of recreation therapy-specific coursework followed by a 15-credit hour, 560-clock hour internship the summer of their senior year.

## Requirements

- Current certification in CPR.
- Immunizations: Mantoux, Rubella Titer/ Roseolla (MMR), Hepatitis B required. Additional immunizations may be required by internship agency.
- Background checks: May be required by internship agency.
- Physical requirements: "Fit for Duty" test may be required by internship agency.
- Transportation: Students must provide their own transportation to internship site.
- Summer classes are required after the senior year. Students graduate in August.

## Bachelor of Science in Recreation Therapy

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
ENGL 1110	College Composition I	3
HHS 1000	Health And Human Services/College Orientation	1
MATH 1180	Reasoning With Mathematics	3
PSY 1010	Principles Of Psychology <sup>1</sup>	3
RCRT 1300	Introduction To Recreation And Leisure Studies <sup>1</sup>	3
Social Science Core		3
<b>Hours</b>		<b>16</b>
Second Term		Hours
ENGL 2960	Professional and Business Writing	3
PSY 2510	Lifespan Developmental Psychology <sup>1</sup>	3
RCRT 1310	Introduction to Recreational Therapy Programming <sup>1</sup>	3
Natural Sciences Core		3
Core Elective		3
<b>Hours</b>		<b>15</b>
Third Term		Hours
EXSC 1560	Fundamentals of Anatomy and Physiology <sup>1</sup>	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab <sup>1</sup>	1

PSY 2200	Abnormal Psychology <sup>1</sup>	3
Arts/Humanities Core (Non-US Diversity)		3
RCRT 4720	Introduction To Therapeutic Recreation <sup>1</sup>	3
<b>Hours</b>		<b>13</b>
Fourth Term		Hours
HEAL 1800	Medical Terminology <sup>1</sup>	3
RCRT 3310	Inclusion and Recreational Therapy Services <sup>1</sup>	3
Core Elective		3
Arts/Humanities Core		3
<b>Hours</b>		<b>12</b>
Fifth Term		Hours
RCRT 4340	Leisure, Recreation, And Aging in Recreational Therapy Practice <sup>1</sup>	3
RCRT 4730	Physical and Neurological Diagnosis and Conditions in Recreational Therapy Practice <sup>1</sup>	3
RCRT 4740	Assessment And Documentation In Therapeutic Recreation <sup>1</sup>	3
RCRT 4560	Recreational Therapy Interventions 1 <sup>1</sup>	3.0
<b>Hours</b>		<b>12</b>
Sixth Term		Hours
RCRT 4040	Recreational Therapy Services within the Veterans Administration <sup>1</sup>	3
RCRT 4750	Group Dynamics In Recreational Therapy <sup>1</sup>	3
RCRT 4790	Psychological Diagnosis and Conditions in Recreational Therapy Practice <sup>1</sup>	3
RCRT 4565	Recreational Therapy Interventions 2 <sup>1</sup>	3.0
<b>Hours</b>		<b>12</b>
Seventh Term		Hours
RCRT 3710	Outdoor and Adaptive Sports Program Delivery in Recreational Therapy Practice <sup>1</sup>	3
RCRT 4450	Research Applications In Recreational Therapy <sup>1</sup>	3
RCRT 4000	Community and Event Planning in Recreational Therapy Service <sup>1</sup>	3
RCRT 4810	Recreational Therapy Fieldwork 1 <sup>1</sup>	1
RCRT 4820	Recreational Therapy Fieldwork 2 <sup>1</sup>	1
RCRT 4570	Recreational Therapy Interventions 3 <sup>1</sup>	2.0
RCRT 4850	Recreational Therapy Internship Preparation <sup>1</sup>	1
<b>Hours</b>		<b>14</b>
Eighth Term		Hours
RCRT 4330	Administration In Recreational Therapy <sup>1</sup>	3
RCRT 4870	Comprehensive Program Planning In Recreational Therapy <sup>1</sup>	3
Core Elective		3
Multicultural Core US		3
RCRT 4830	Recreational Therapy Fieldwork 3 <sup>1</sup>	1
RCRT 4840	Recreational Therapy Fieldwork 4 <sup>1</sup>	1
<b>Hours</b>		<b>14</b>



**Ninth Term**

Summer		
RCRT 4950	Recreation Therapy Internship I <sup>1</sup>	5
RCRT 4770	Recreational Therapy Project Design <sup>1</sup>	1
RCRT 4960	Recreation Therapy Internship II <sup>1</sup>	5
RCRT 4780	Recreational Therapy Project Evaluation <sup>1</sup>	1
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> A "C" or better is required in this course.

- Theoretical and historical foundations of therapeutic recreation: Theoretical foundations of therapeutic recreation service delivery (e.g., foundational models and theories), Theoretical and scientific foundations of the systems in which therapeutic recreation is delivered, including the impact of technology and globalization on those systems, Human functioning, including anatomy and physiology, human growth and development across the lifespan, variations in development and resulting disability, psychology, including abnormal psychology, and theories of human behavior change, Human services supportive areas (e.g., medical terminology, pharmacology, counseling approaches, therapeutic communication, community development, positive behavioral supports)
- 7.02 a) Students graduating from the program shall demonstrate the ability to create/select, conduct, and evaluate individualized assessment for therapeutic recreation services clearly reflecting application of knowledge from relevant facets of contemporary professional therapeutic recreation practice, science, and philosophy. Fundamental elements of assessment: Focus on leisure, physical, social, cognitive, psychological/emotional, and spiritual domains of human well-being, Encompass standardized assessments, observation, interview, and record review, Are team-based and inter/transdisciplinary, Ascertain participants abilities, strengths, goals, and aspirations
- 7.02 b) Students graduating from the program shall demonstrate the ability to conduct individualized planning of therapeutic recreation services clearly reflecting application of knowledge from relevant facets of contemporary professional therapeutic recreation practice, science, and philosophy. Fundamental elements of individualized planning: Utilize assessment results to generate person-centered contextualized plans  
-Use appropriate and correctly formatted goals and objectives, Use culturally relevant evidence-based interventions, strategies, facilitation techniques, modalities, activities, and adaptations, Are team-based and involve the family/community, Are contextualized to the service delivery system (e.g., health care, human services, recreation, education)
- 7.02 c) Students graduating from the program shall demonstrate the ability to implement and facilitate therapeutic recreation interventions and services for diverse clientele, settings, cultures, and contexts. Fundamental elements of implementation and facilitation include: Individual and group leadership skills, Helping relationship skills, A variety of common therapeutic recreation interventions, facilitation techniques, activities, and modalities, Activity/task analysis, adaptation, and assistive technologies  
-Team and family participation, Advocacy, Contextualization to the service delivery system (e.g., health care, human services, recreation, education)

- 7.02 d) Students graduating from the program shall demonstrate the ability to document therapeutic recreation services according to regulatory, professional, and system requirements. Fundamental elements of documentation include: Assessment results, Individualized plans, Progress notes, Discharge/transition summaries, Compliance with agency, accreditation, and professional standards for documentation
- 7.02 e) Students graduating from the program shall demonstrate the ability to evaluate therapeutic recreation services at the participant and program level and to use evaluation data to improve the quality of services. Fundamental elements include: Use of appropriate research and evaluation designs and methods to conduct formative and summative evaluation to document outcomes from services, Use of evaluation results to improve services or programs and show accountability, Quality assurance/quality improvement contextualized to the service delivery system
- 7.03 Students graduating from the program shall be able to demonstrate entry-level knowledge about facts, concepts, principles, and procedures of management/administration in therapeutic recreation. Fundamental elements include: Regulatory and legal compliance contextualized to the service delivery system (e.g., health care, human services, recreation, education), Operations and maintenance, Finance and budgeting, reimbursement, Marketing and advocacy, Strategic and other agency/program level planning, Risk and safety management, Quality management, Human resource development and management, Professional development, Evidence-theory-based practices, Research and technological impacts
- 7.04 a) Students graduating from the program shall demonstrate a readiness for the internship as determined by meeting criteria set by the program (e.g., fieldwork hours prior to the internship, competency testing, GPA requirements in core coursework, basic certifications in first aid/CPR, other dispositions or candidacy benchmarks set by the program).
- 7.04 b) Students graduating from the program shall demonstrate, through a comprehensive and culminating internship, the ability to apply the therapeutic recreation process, use diverse, structured ways of thinking to solve problems related to different facets of professional practice, engage in advocacy, and stimulate innovation. The internship must meet current professional standards for credentialing with the state, national/international credentialing bodies.

## BS in Respiratory Care

The University of Toledo offers a bachelor of science degree in respiratory care. This degree requires 120 credit hours for graduation. Respiratory care is an allied health specialty. Respiratory care practitioners work with physicians in the treatment, management, control, diagnostic evaluation and care of patients with diseases and abnormalities associated with the cardiopulmonary system.

Respiratory therapists treat a diverse group of patients ranging from newborn and pediatric patients to adults and the elderly. Disease states or conditions often requiring care include asthma, emphysema, chronic obstructive pulmonary disease (COPD), pneumonia, cystic fibrosis, acute and infantile respiratory distress syndrome as well as conditions brought on by shock, trauma or post-operative surgical complications. Respiratory therapists function in many specialty areas in the hospital, such as

newborn labor and delivery, neonatal and pediatric intensive care units, pulmonary function laboratory, sleep laboratory and adult intensive care units. The baccalaureate degree prepares respiratory therapists to deliver respiratory care in the hospital, home and alternative care sites.

The student completing the Bachelor of Science in respiratory care degree program will be an advanced-level practitioner eligible to sit for the national board examination to become a Registered Respiratory Therapist (RRT) as well as take specialty examinations in the areas of Perinatal/Pediatrics, Adult Critical Care, Sleep Disorders and Pulmonary Function Technology.

For additional information please visit the Respiratory Care Website at <http://www.utoledo.edu/hhs/respiratorycare/> (<https://www.utoledo.edu/hhs/respiratorycare/>)

## Selective Admissions Requirements

Admission into the Professional Division of the Respiratory Care Program is selective, competitive and limited due to the number of students who can be accommodated by the faculty and clinical facilities. Once accepted to the University, students must file a separate application for the respiratory care program with the program selective admissions committee through the Office of Student Services. This occurs during the second semester of the sophomore year. Students admitted to the Professional Division are required to take summer courses to start the program.

To be eligible for admission to the Professional Division of the Respiratory Care Program the criteria listed below must be met.

- Complete the following courses (or their equivalent or higher) with a grade of C or better:

Code	Title	Hours
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1320	College Algebra	3
CHEM 1120	Chemistry For Health Sciences	4
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2590	Microbiology and Infectious Diseases	3
HEAL 1800	Medical Terminology	3
<b>Total Hours</b>		<b>27</b>

- Minimum cumulative GPA of 2.5
- In addition to cumulative GPA, the student's GPA in the following courses fulfilling the math and science prerequisite course requirements will be evaluated separately from overall GPA:

Code	Title	Hours
MATH 1320	College Algebra	3
CHEM 1120	Chemistry For Health Sciences	4
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
EXSC 2570	Human Anatomy and Physiol II	3

EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2590	Microbiology and Infectious Diseases	3

- Admission to the Professional Division is based primarily upon the overall GPA and the GPA in math and science prerequisite classes.

The Respiratory Care Program complies with the American with Disabilities Act (ADA). If a student is unable to meet the required "Functional Abilities/Core Performance Standards," the student may consult with program faculty and with an Accessibility Specialist from The University of Toledo Student Disability Services to determine, on a case by case basis, if reasonable accommodations can be made that would permit the student to meet these "Functional Abilities/Core Performance Standards" and thus enter into the program. For a list of "Functional Abilities/Core Performance Standards" please refer to the following website: <http://www.utoledo.edu/hhs/respiratorycare/pdfs/Functional%20Abilities%202019.pdf>

Other requirements for entry in the Professional Division Program include completion of the following:

- Physical exam form and Fit for Duty Form
- Positive Hepatitis B antibody titer or evidence of completion of 3-shot Hepatitis B vaccination series
- Positive antibody titers for Rubella, Rubeola, Mumps, and Varicella. If titers are not positive, vaccination must be completed
- Tuberculosis 2-step skin test (yearly). If positive, must have negative chest x-ray
- Evidence of tetanus and diphtheria vaccination within last 10 years
- Annual multivalent flu vaccination

In addition to University Core Credits, required courses include:

Code	Title	Hours
CHEM 1120	Chemistry For Health Sciences	4
ENGL 1110	College Composition I	3
HEAL 1800	Medical Terminology	3
HHS 1000	Health And Human Services/College Orientation	1
MATH 1320	College Algebra	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
PHIL 1020	Critical Thinking	3
PSY 1010	Principles Of Psychology	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 3800	Death And Dying	3
MATH 2600	Introduction To Statistics	3
EXSC 2590	Microbiology and Infectious Diseases	3
HEAL 2800	Principles Of Nutrition	3
PHIL 3370	Medical Ethics	3
RCBS 3010	Respiratory Care Fundamentals	4
RCBS 3020	Respiratory Care Practice I	4
RCBS 3110	Respiratory Care Therapeutics I	4



RCBS 3120	Respiratory Care Practice II	7
RCBS 3130	Cardiopulmonary Diagnostics I	4
RCBS 3200	Introduction to Critical Care	1
RCBS 3210	Respiratory Care Therapeutics II	4
RCBS 3220	Respiratory Care Practice III	7
RCBS 3230	Cardiopulmonary Diagnostics II	2
RCBS 4140	Integrated Clinical Practice I	4
RCBS 4150	Neonatal/Pediatric Respiratory Care	4
RCBS 4160	Clinical Assessment	3
RCBS 4700	Research Analysis In Respiratory Care	3
RCBS 3300	Advanced Cardiac Life Support	1
RCBS 4240	Integrated Clinical Practice II	3
RCBS 4510	Respiratory Care in Alternate Sites	3
RCBS 4800	Issues In Professional Practice	3
RCBS 4810	Preparation For Professional Practice	1

All RCBS courses must be completed with a grade of "C" or better.

Below is a sample program of study. Consult your degree audit for your program requirements.

## Bachelor of Science in Respiratory Care

First Term		Hours
CHEM 1120	Chemistry For Health Sciences <sup>1</sup>	4
ENGL 1110	College Composition I <sup>1</sup>	3
HEAL 1800	Medical Terminology <sup>1</sup>	3
HHS 1000	Health And Human Services/College Orientation	1
MATH 1320	College Algebra <sup>1</sup>	3
<b>Hours</b>		<b>14</b>
Second Term		
ENGL 1130	College Composition II: Academic Disciplines And Discourse <sup>1</sup>	3
EXSC 2560	Anatomy and Physiology I <sup>1</sup>	3
EXSC 2460	Human Anatomy And Physiology I Lab <sup>1</sup>	1
PHIL 1020	Critical Thinking	3
PSY 1010	Principles Of Psychology	3
Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>
Third Term		
EXSC 2570	Human Anatomy and Physiol II <sup>1</sup>	3
EXSC 2470	Human Anatomy And Physiology II Lab <sup>1</sup>	1
HEAL 3800	Death And Dying	3
MATH 2600	Introduction To Statistics	3
Diversity of US		3
<b>Hours</b>		<b>13</b>
Fourth Term		
EXSC 2590	Microbiology and Infectious Diseases <sup>1</sup>	3
HEAL 2800	Principles Of Nutrition	3
PHIL 3370	Medical Ethics	3
Social Sciences Core		3

Non-US Diversity	3
<b>Hours</b>	<b>15</b>

### Fifth Term

<b>Summer</b>		
RCBS 3010	Respiratory Care Fundamentals <sup>1</sup>	4
RCBS 3020	Respiratory Care Practice I <sup>1</sup>	4
<b>Hours</b>		<b>8</b>

### Sixth Term

RCBS 3110	Respiratory Care Therapeutics I <sup>1</sup>	4
RCBS 3120	Respiratory Care Practice II <sup>1</sup>	7
RCBS 3130	Cardiopulmonary Diagnostics I <sup>1</sup>	4
<b>Hours</b>		<b>15</b>

### Seventh Term

RCBS 3200	Introduction to Critical Care	1
RCBS 3210	Respiratory Care Therapeutics II <sup>1</sup>	4
RCBS 3220	Respiratory Care Practice III <sup>1</sup>	7
RCBS 3230	Cardiopulmonary Diagnostics II <sup>1</sup>	2
<b>Hours</b>		<b>14</b>

### Eighth Term

RCBS 4140	Integrated Clinical Practice I <sup>1</sup>	4
RCBS 4150	Neonatal/Pediatric Respiratory Care <sup>1</sup>	4
RCBS 4160	Clinical Assessment <sup>1</sup>	3
RCBS 4700	Research Analysis In Respiratory Care <sup>1</sup>	3
<b>Hours</b>		<b>14</b>

### Ninth Term

RCBS 3300	Advanced Cardiac Life Support <sup>1</sup>	1
RCBS 4240	Integrated Clinical Practice II <sup>1</sup>	3
RCBS 4510	Respiratory Care in Alternate Sites <sup>1</sup>	3
RCBS 4800	Issues In Professional Practice <sup>1</sup>	3
RCBS 4810	Preparation For Professional Practice <sup>1</sup>	1
<b>Hours</b>		<b>11</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> A "C" or better is required in this course.

- PLO 1. Safely and correctly perform all forms of Cardiopulmonary Resuscitation (CPR) in adult and neonatal-pediatric patients.
- PLO 2. Perform airway management techniques to ensure maintenance of a patent airway.
- PLO 3. Safely and effectively initiate and manage various classifications of mechanical ventilation on adult patients.
- PLO 4. Safely and effectively initiate and manage various classifications of mechanical ventilation on neonatal- pediatric patients.
- PLO 5. Safely and effectively administer all forms of oxygen therapy.
- PLO 6. Safely and effectively administer all forms of humidity therapy.
- PLO 7. Safely and effectively administer appropriate aerosol medication via inhalation route.
- PLO 8. Safely draw, analyze and interpret arterial blood gas sample.

- PLO 9. Correctly assess and interpret the status of a patient’s acid-base balance.
- PLO 10. Perform appropriate pulmonary function testing techniques and provide accurate interpretation of the patient data.
- PLO 11. Recognize and identify in the professional literature best-practices of evidence-based Respiratory Care treatments and procedures.
- PLO 12. Correctly and accurately assess the condition of a cardiopulmonary patient.

to discriminate correct production of and model Standard American English phonemes, vocabulary, grammatical forms, and prosodic patterns.

We urge applicants to ask questions about the program’s technical standards for clarification and to determine whether they can meet the requirements with or without reasonable accommodations. Such questions may be directed to the Program Director or the Office of Accessibility and Disability Resources on campus.

Each student, while enrolled in the didactic and clinical portions of the speech-language pathology curriculum, is required to complete various immunizations:

- Positive MMR titers
- Positive Varicella titer
- Positive Hep B titer
- Hep B Vaccination Series
- Current Tdap
- 2-step Initial TB test
- and 1-step Annual TB test.

**Students are prohibited to engage in laboratory activities or to attend clinical facilities if this information is not on file for the current year.** It should also be noted that some clinical education sites have **additional health requirements** (flu shots, drug screens, etc.). All expenses incurred in obtaining a physical, necessary laboratory tests, immunizations and additional health requirements are the responsibility of the student.

All speech-language pathology students are required to complete both an Ohio BCI background check and an FBI criminal background check prior to participating in any clinical experiences.

Sample curriculum is subject to change. Please consult the department for up-to-date information. All course prerequisites must be met. Other than EXSC 2560 and EXSC 2460, non-SLP courses may be taken in a different order than shown.

NOTE: Students must earn a “C” or higher grade in all major courses as well as those courses that meet ASHA and Ohio Department of Education requirements. See program check sheet provided by the advisor for additional information. Graduate program requirements may be higher.

## BS in Speech-Language Pathology

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
ENGL 1110	College Composition I	3
HHS 1000	Health And Human Services/College Orientation	1
PSY 1010	Principles Of Psychology	3
SOC 1010	Introduction To Sociology	3
SLP 1400	Introduction to Communication Disorders	3
Natural Sciences Core (Chemistry or Physics)		3
<b>Hours</b>		<b>16</b>

## BS in Speech-Language Pathology

The University of Toledo offers a bachelor of science degree in speech-language pathology. The degree requires 120 credit hours for graduation. The program provides course work in communication disorders, which prepares the student for graduate work in speech-language pathology. The program prides itself on the clinical experience offered to its undergraduate students. All students participate in a face-to-face clinical practicum in their senior year which makes them more than well prepared for the master’s program. Furthermore, undergraduate students have opportunities to work on research projects and have greater interaction with faculty members. Undergraduate students can earn automatic enrollment into the graduate program. A master’s degree is one of the requirements for licensure and certification as a speech-language pathologist.

The University of Toledo admits and matriculates qualified speech-language pathology students in accordance with the UToledo Policy of Nondiscrimination on the Basis of a Disability, The Americans with Disabilities Act, Section 504 of the Rehabilitation Act of 1973, The State of Ohio Revised Code, and other applicable statutes and regulations relating to equality of opportunity.

The Essential Functions provide information to allow a candidate to make an informed decision for application and are a guide to accommodation of students with disabilities. Academic adjustments can be made for disabilities in some instances, but a student must be able to perform the essential functions of a speech-language pathologist independently either with or without reasonable accommodation.

Many physical, behavioral and social, and cognitive and intellectual abilities are necessary for satisfactory mastery of the academic and clinical curriculum and professional responsibilities in the field of speech-language pathology.

- Essential physical abilities include, but are not limited to, the ability to visually monitor patient responses and materials and to make judgments about speech and acoustic signals.
- Examples of behavioral and social attributes include maintaining emotional and mental health necessary to use one’s intellectual abilities, to promptly complete responsibilities, and to develop appropriate relationships with faculty, supervisors, staff, peers, clients, parents or caregivers, and other professionals.
- Essential cognitive and intellectual abilities include, among others, demonstrating the mental capacity to learn and assimilate professional information, including the ability to comprehend oral and written professional literature and reports; ability to write discipline-specific papers and clinical reports in Standard American English; ability to speak Standard American English intelligibly and



<b>Second Term</b>		
ENGL 2960	Professional and Business Writing	3
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
Arts/Humanities Core		3
SLP 2150	Speech and Hearing Science	4
<b>Hours</b>		<b>14</b>
<b>Third Term</b>		
SLP 3020	Anatomy And Physiology Of Communication Mechanisms	4
SLP 3030	Normal Language Acquisition	4
Diversity of US		3
Elective		3
<b>Hours</b>		<b>14</b>
<b>Fourth Term</b>		
SLP 3010	Clinical Phonetics	4
SLP 3300	Language Disorders	4
Arts/Humanities Core		3
Core Elective		3
<b>Hours</b>		<b>14</b>
<b>Fifth Term</b>		
SPED 2040	Perspectives In The Field Of Exceptionalities	3
SLP 3200	Articulation/Phonological Disorders	4
Select one of the following:		3
HEAL 1800	Medical Terminology	
HEAL 2500	Personal Health	
HEAL 4560	Health Problems Of Aging	
COUN 2220	Family Theories And Cultural Influences In Mental Health	
COUN 4080	Essentials Of Helping Relationships	
Electives		6
<b>Hours</b>		<b>16</b>
<b>Sixth Term</b>		
MATH 2600	Introduction To Statistics	3
SLP 3800	Methods For Clinical Intervention	3
SPED 4110	Curriculum And Methodology For Students With Moderate Educational Needs	3
Non-US Diversity		3
Select one of the following:		3
HEAL 1800	Medical Terminology	
HEAL 2500	Personal Health	
HEAL 4560	Health Problems Of Aging	
COUN 2220	Family Theories And Cultural Influences In Mental Health	
COUN 4080	Essentials Of Helping Relationships	
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
SLP 3400	Clinical Audiology	3
Core Elective		3

Elective (2000-level or higher)		9
<b>Hours</b>		<b>15</b>
<b>Eighth Term</b>		
SLP 4000	Beginning Clinical Practicum	2
Core Elective		3
Elective		11
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>120</b>

- 1 Demonstrate specialized knowledge of human communication.
- 1.1 Demonstrate knowledge of basic human communication and swallowing processes including the appropriate biological, neurological, acoustic, psychological, developmental, and linguistic and cultural bases.
- 1.2 Demonstrate the ability to integrate information pertaining to normal and abnormal human development across the life span.
- 1.3 Demonstrate knowledge of standards of ethical conduct.

## Department of Human Services

Jennifer Reynolds, Chair

Wendi Goodlin-Fahncke, Criminal Justice Program Director

John Schlageter, Legal and Paralegal Studies Program Director

Meredith Rinna, Social Work Program Director

The Department of Human Services offers undergraduate degree programs in criminal justice, legal and paralegal studies, and social work. Minors are available in counseling, criminal justice, data science, forensic science investigation and legal specialties. Undergraduate certificates are offered in chemical dependency counseling, nurse paralegal, and post-baccalaureate legal and paralegal studies.

## Accreditation

- The Legal and Paralegal Studies program maintains approval from the American Bar Association (ABA).
- The Social Work program is accredited by the Council on Social Work Education (CSWE).

## Degrees Offered

- Associate of Applied Science in Legal and Paralegal Studies (p. 319)
- BS in Criminal Justice (p. 320)
- BS in Legal and Paralegal Studies (p. 322)
- BSW in Social Work (p. 323)
- Certificate in Chemical Dependency Counseling (p. 324)
- Certificate in Nurse Paralegal (p. 325)
- Minor in Counseling
- Minor in Criminal Justice (p. 326)
- Minor in Data Science (p. 325)
- Minor in Forensic Science Investigation (p. 326)
- Minor in Legal Specialties (p. 327)
- Post Baccalaureate Certificate in Legal and Paralegal Studies (p. 327)



**COUN 1110 Fundamentals Of Human Mental Health**

[4 credit hours]

An introduction to the field of human services, especially mental health, history and current trends in treatment and prevention of disease and the basic skills common to the field. Students will learn skills at the demonstrable level as they will later be used in the field.

**Term Offered:** Spring, Fall**COUN 1240 Substance Abuse Issues In Mental Health**

[3 credit hours]

An overview and survey of addictive disorders, use and abuse, and the personal and cultural effects of chemical dependency.

**Term Offered:** Spring, Fall**COUN 2120 Group And Therapeutic Approaches**

[4 credit hours]

A study of various types of groups and activity skills used in mental health environments both inpatient and community based. Focus on design, principles, procedures and applications of various techniques.

**Term Offered:** Fall**COUN 2220 Family Theories And Cultural Influences In Mental Health**

[3 credit hours]

Study of basic family systems and structures and the influences of cultural patterns as they interact and impact the mental health and therapeutic needs of individual family members.

**Term Offered:** Spring**COUN 3000 Cultural Competence in Health and Human Services****Professions**

[3 credit hours]

This course provides an introduction to multicultural helping in the health and human services professions. The influence of socio-identities (e.g., race, ethnicity, religion, gender, socioeconomic status, sexual orientation, ability) on individuals' functioning, concerns, and the helping process will be explored in the context of health and human service professions.

**Term Offered:** Spring, Summer, Fall**COUN 3110 Case Management In Mental Health**

[3 credit hours]

The study of and practice of using case management models and skills with clients within the mental health environment. Models appropriate for different agency types will be explored and the various modalities available will be introduced.

**Term Offered:** Spring**COUN 3140 Substance Abuse Prevention And Community Programming**

[3 credit hours]

An evaluation of prevention programs and community resources available in the prevention and treatment of substance abuse.

**Term Offered:** Fall**COUN 3150 Models Of Treatment For Substance Abuse**

[3 credit hours]

A review of the various components of substance abuse and philosophies of treatment. Theories of etiology and maintenance are also addressed.

**Term Offered:** Spring**COUN 3220 Theories in Mental Health**

[3 credit hours]

Overview of current approaches of psychological theory. This course includes an examination of the basic issues in mental health, including ethical issues and personal implications for the mental health professional.

**Term Offered:** Fall**COUN 3380 College Student Leadership Development I**

[1-3 credit hours]

First semester in development of skills for student leaders through didactic experience, simulation exercises and practicum experiences. Especially designed for student government leaders and peer counselor/advisers.

**Term Offered:** Fall**COUN 3390 College Student Leadership Development II**

[1-3 credit hours]

Second semester in student leadership training. The development of skills for student leaders through didactic experience, simulation exercises and practicum experiences. Especially designed for student government leaders and peer counselor/advisers.

**Prerequisites:** COUN 3380 with a minimum grade of D- or CMHS 3380 with a minimum grade of D-**Term Offered:** Spring**COUN 4080 Essentials Of Helping Relationships**

[3 credit hours]

Emphasis upon skills, concepts and practices in the helping professions. Multicultural and ethical issues along with dealing with crisis situations will be covered.

**COUN 4240 Substance Abuse Treatment Techniques**

[3 credit hours]

An examination of ethical and legal issues in substance abuse, as well as examination of the specific skills needed by workers in substance abuse programs.

**Term Offered:** Spring**CRIM 1010 Criminal Justice**

[3 credit hours]

The overall history, philosophy and functioning of the criminal justice system in the U.S. The integrated roles of law enforcement, the courts and corrections will be analyzed and discussed.

**Term Offered:** Spring, Fall**CRIM 1040 HUMAN RELATIONS AND DIVERSITY IN CRIMINAL JUSTICE**

[3 credit hours]

This class will focus on human relations and cultural diversity faced by the criminal justice system, including the police, courts, corrections, and community organizations, and the course will explore general principles in effective human relations, the importance of diversity, and their application in the field of criminal justice.

**Term Offered:** Spring, Fall**CRIM 1110 Penology**

[3 credit hours]

The study of jails, prisons and other types of specialized correctional institutions. The philosophy of incarceration along with the administration, staffing and operations of these facilities will be reviewed.

**Term Offered:** Spring, Fall

**CRIM 1240 Policing**

[3 credit hours]

Introduction to law enforcement practices and agencies in the United States, including the history, philosophy and operation of federal, state and local enforcement agencies.

**Term Offered:** Spring, Fall**CRIM 2050 Applied Criminology**

[3 credit hours]

This course examines the theoretical causes of crime in relation to the duties and responsibilities of polices and corrections personnel, and the development of criminal justice polices.

**Term Offered:** Spring, Summer, Fall**CRIM 2200 Criminal Law**

[3 credit hours]

The statutes of Ohio relating to crime and the elements necessary for establishing and providing proof of crimes are studied.

**Prerequisites:** CRIM 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**CRIM 2210 Criminal Investigation I**

[3 credit hours]

Introduction to the processes, theories and principles of criminal investigation. Methods of gathering information, report writing, interview/interrogation strategies, surveillance, search warrant information, affidavit preparation and execution are studied.

**Prerequisites:** CRIM 1010 with a minimum grade of D-**Term Offered:** Fall**CRIM 2220 Laws Of Evidence**

[3 credit hours]

A thorough study of the evidence rules with specific emphasis on the application of these rules in preparing and presenting evidence.

**Prerequisites:** CRIM 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**CRIM 2230 Criminal Procedure**

[3 credit hours]

An examination of the Bill of Rights of the U.S. Constitution as it appears to arrest, search, seizure, detention, interviews, and interrogations.

**Term Offered:** Spring, Summer, Fall**CRIM 2250 Juvenile Justice**

[3 credit hours]

To analyze the causes of juvenile delinquency and the extent of the problem in the U.S. Also, to discuss the inter-workings of the juvenile justice system in response to the delinquency problem, in conjunction with delinquency prevention programs.

**Term Offered:** Spring, Summer, Fall**CRIM 2990 Independent Study**

[1-6 credit hours]

Supervised independent study.

**Term Offered:** Spring, Fall**CRIM 3110 Hate Crimes**

[3 credit hours]

The course examines the genesis, development, theory and practice of hate crimes and how society has and can respond to hate crimes.

**Term Offered:** Summer, Fall**CRIM 3210 Applied Psychology for Criminal Justice Personnel**

[3 credit hours]

This course overviews mental disorders and substance abuse problems common to persons entering the criminal justice system. Related social policies and criminal justice practices are critically examined.

**Term Offered:** Spring, Summer, Fall**CRIM 3240 Victimology**

[3 credit hours]

This course examines the history of victimology and includes topics such as the characteristics of crime victims and specific types of victimization such as hate crimes and sexual assault.

**Prerequisites:** CRIM 1010 with a minimum grade of D-**Term Offered:** Summer, Fall**CRIM 3250 Women and Crime**

[3 credit hours]

This course will explore the causes and social consequences of crimes by and against women. The course will expose students to feminist theory and examine the interlocking effects of gender, race and class.

**Term Offered:** Spring, Summer, Fall**CRIM 3290 Criminal Investigation II**

[3 credit hours]

An introduction to the crime scene, including methods of searching, photography, sketching and gathering of physical evidence. Fingerprint analysis. Methods utilized in drug investigations and development of information sources are studied.

**Prerequisites:** CRIM 2210 with a minimum grade of D-**Term Offered:** Spring**CRIM 3300 Sex Crimes**

[3 credit hours]

Overview of a variety of sex crimes, characteristics of sexual predators, theories to explain sex crimes, and current legislation and treatment efforts utilized today to combat sex crimes.

**CRIM 4000 Narcotics Policy and Enforcement**

[3 credit hours]

This course will explore the "War on Drugs" from a historical, pharmacological, economic, political, and practical perspective.

**Term Offered:** Spring, Summer**CRIM 4010 Probation and Parole**

[3 credit hours]

An introduction to the history and dynamics of probation and parole, how they interact within the criminal justice system, and the effective treatment of offender clients.

**Term Offered:** Spring**CRIM 4100 Criminal Justice Research Methods**

[3 credit hours]

This course provides students with an understanding of criminal justice research, the concepts and logic of research designs and widely used statistical procedures.

**Term Offered:** Spring, Summer, Fall**CRIM 4200 Ethics In Criminal Justice**

[3 credit hours]

This course is designed to provide students with an opportunity to integrate ethics in their understanding of criminal justice.

**Term Offered:** Spring, Summer, Fall

**CRIM 4410 Criminal Forensic and Trial Practice**

[3 credit hours]

This cross-listed capstone course will allow students to step out of the traditional classroom setting and participate in an applied skills course that will benefit them in the real world of Criminal Justice. Students will be presented with a case and will be responsible for the various stages of the investigative process as well as the trial process.

**Prerequisites:** CRIM 2210 with a minimum grade of D- and CRIM 3290 with a minimum grade of D-

**CRIM 4450 Administration Of Police Services**

[3 credit hours]

The application of management principles to municipal police departments, emphasizing the resources, constraints and strategies of police managers.

**Term Offered:** Spring, Summer, Fall

**CRIM 4490 Current Topics-Crim**

[3 credit hours]

Examination of selected current issues in criminal justice that impact our knowledge and understanding of the field.

**Term Offered:** Spring, Summer, Fall

**CRIM 4520 Police And Society**

[3 credit hours]

An examination of the role of the police in contemporary America, emphasizing the ambivalence of the self-image of the police and the social and political forces that compete to redefine police function.

**Term Offered:** Spring, Summer, Fall

**CRIM 4590 Administration Of Criminal Justice**

[3 credit hours]

A research-oriented course into the relationship of the major structures of criminal justice-police, prosecutor, courts and corrections with emphasis on the development of performance evaluation criteria.

**Term Offered:** Spring, Fall

**CRIM 4940 Criminal Justice Internships**

[3-12 credit hours]

Field placement experience within a criminal justice agency to enhance the student's practical knowledge of the field in conjunction with career planning opportunities.

**Term Offered:** Spring, Summer, Fall

**CRIM 4990 Independent Study In Criminal Justice**

[1-3 credit hours]

Individual course of study in a selected topic pertaining to Criminal Justice chosen by the student, with the consent of the instructor.

**Term Offered:** Spring, Summer, Fall

**LGL 1010 Introduction To Law**

[3 credit hours]

The course is designed to improve oral and written communication skills through the study of contracts, real property, torts and criminal law. The course includes the structure and operation of the state and federal court systems, as well as the status and uses of paralegals.

**Term Offered:** Spring, Fall

**LGL 1150 Tort Law**

[3 credit hours]

This course covers the traditional areas of tort law, including negligence, trespass, mental distress and conversion as well as the defenses to these claims. The course is taught through the case study method.

**Term Offered:** Spring

**LGL 1160 Legal Research, Writing And Case Analysis**

[3 credit hours]

Designed to provide the student with an understanding of the function of the law library and to develop research techniques and legal analysis and writing skills through use of traditional law library materials and computerized legal research techniques such as Lexis and Anderson CD-ROM Law on Disk.

**Prerequisites:** LGL 1010 with a minimum grade of D-

**Term Offered:** Spring

**LGL 1500 Legal Aspects of Poverty**

[3 credit hours]

A significant part of the United States population lives in poverty. Students will learn to think critically about how poverty intersects with issues of diversity, political discourse, macro-ethics, and societal concepts of economic justice. Students will ultimately gain effective communication skills to participate meaningfully in social discourse about poverty. Students will explore a range of legal and policy issues affecting the ability of low-income people to access the most basic necessities of life. We will examine (1) the substantive law governing access to necessities; (2) human rights theories of poverty; (3) the effects of market forces on poverty; and (4) how poverty affects work, education, criminalization, and access to justice. This course aims to give students a solid grounding in both the content and impact of the laws and policies governing poverty in America.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**LGL 1720 Law Practice Management**

[3 credit hours]

This course exposes students to various management structures within and the administration of the law office and other legal environments. Critical thinking will be applied to management theories and applications.

**Term Offered:** Fall

**LGL 2020 Civil Procedure**

[3 credit hours]

An in-depth study of the Rules of Civil Procedure, including application of rules of fact patterns. Students will draft litigation documents including complaint, answer and discovery pleadings.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1150 with a minimum grade of D-)

**Term Offered:** Fall

**LGL 2110 Estate & Probate Administration**

[3 credit hours]

Study of the common forms of wills and trusts and a survey of the fundamental principles of law applicable to each; study of the organization and jurisdiction of the probate court, analysis of the administration of estates in probate court and a review of estate and inheritance taxes.

**Term Offered:** Spring

**LGL 2120 Real Estate Transactions**

[3 credit hours]

The law of real property and common types of real estate transactions and conveyances, such as deeds, land installment contracts, sales contracts and leases, with emphasis on researching, drafting and recording of documents related thereto.

**Term Offered:** Fall**LGL 2130 Family Law**

[3 credit hours]

Study of the law and practice of divorce, dissolution and all matters relating to the termination of a marriage. Students will be trained to conduct client interviews, draft pleadings and associated court forms, and calculate support under state-mandated guidelines.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1160 with a minimum grade of D-)

**Term Offered:** Fall**LGL 2210 Practices And Procedures In Administrative Law**

[3 credit hours]

This course takes a look at the substantive and procedural aspects of various administrative law agencies with emphasis on providing skills to practice in administrative law.

**Term Offered:** Spring**LGL 2700 Advocacy: Mock Trial**

[3 credit hours]

An in-depth survey of the trial process which exposes students to each step of a trial in a hands-on fashion. The course will be taught utilizing traditional lecture, reading and actual mock trial experience.

**Term Offered:** Fall**LGL 2940 Legal Assisting Internship**

[3 credit hours]

Field experience in law offices. Students will be placed in various legal assisting positions by the program director. Students will meet for job-related seminar once a week and will work at their assigned law office for 180 hours during the semester.

**Term Offered:** Spring, Summer, Fall**LGL 3010 Law Of Business Associations**

[3 credit hours]

Study of business entities: sole proprietorships, partnerships and corporations. Critical analysis of business entities, de factor and de jure entities. Students will complete articles of incorporation, bylaws and minute books.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1720 with a minimum grade of D-)

**Term Offered:** Spring**LGL 3030 Advanced Legal Research & Writing**

[3 credit hours]

Focus on advanced legal writing. Students will be challenged to master computer assisted legal research methods.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1160 with a minimum grade of D-)

**Term Offered:** Fall**LGL 3050 Bankruptcy Practices & Consumer Applications**

[3 credit hours]

An analysis of consumer laws including landlord-tenant relationships, consumer sales practices, uniform commercial code transactions, credit card law, garnishment, fair debt collection practices act and the United States Bankruptcy Code.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1160 with a minimum grade of D-)

**Term Offered:** Fall**LGL 3110 Personal Law**

[3 credit hours]

Through critical reasoning/collaborative learning, students will examine personal law issues and legal rights/responsibilities, enabling them to formulate analytical models readily transferable to legal issues in their present and future lives.

**Term Offered:** Spring, Summer**LGL 3120 Personal Law II**

[3 credit hours]

An analysis of current legal decisions on topics such as same sex marriage, home forced entry and theology studies subsidies through analogizing/distinguishing related fact patterns and criticizing judicial exposition/logic.

**Prerequisites:** LGL 3110 with a minimum grade of D-

**LGL 3330 Litigation**

[3 credit hours]

Focus on evidence and investigation, applying critical thinking skills to actual litigation cases. Analysis of court pleadings for appropriateness and alternative mechanisms. Study of post trial and appellate matters.

**Prerequisites:** (LGL 1150 with a minimum grade of D- and LGL 2020 with a minimum grade of D-)

**Term Offered:** Spring**LGL 4030 Contract Law**

[3 credit hours]

Focus on the laws concerning creation and termination of contracts. Students will analyze contractual terms including reliance, capacity, unconscionability, conditions, assignments, third-party beneficiaries and the effect of changed circumstances.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1160 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall**LGL 4130 Clinic Experience**

[3 credit hours]

Students will work in a clinical environment, such as: Court Appointed Special Advocates, the UT Center for Mediation and Legal Rights, the Toledo Bar Association's Pro Se Family Law Program.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1160 with a minimum grade of D-)

**Term Offered:** Spring**LGL 4230 Health Care And The Law**

[3 credit hours]

An analysis of health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations.

**Term Offered:** Spring, Summer, Fall

**LGL 4330 Mediation: Topics And Techniques**

[3 credit hours]

This service learning course teaches the facilitative approach to mediating disputes. Students break down disputed issues, role play, and observe actual mediations for the peaceful and cooperative resolution of disputes.

**Term Offered:** Spring, Fall**LGL 4940 Advanced Paralegal Internship**

[3 credit hours]

Field experience for seniors, placement within their specialty. Students meet for 1 hour seminar and work at assigned law office for 12 hours per week.

**Term Offered:** Spring, Summer, Fall**LGL 4990 Criminal Forensics and Trial Practice**

[3 credit hours]

This course allows students to step out of the traditional classroom setting and practice hands-on skills. Students will be assigned as crime scene investigators, paralegals and attorneys and will be responsible for investigating a homicide, indicting a suspect and conducting a trial. Part I of the class involves investigative techniques for the homicide investigative process. Part II of the class exposes students to each step of the trial in a hands-on fashion.

**Prerequisites:** LGL 2700 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**SOCW 1030 Introduction To Social Welfare**

[3 credit hours]

Introduction to the social welfare institution, its history, relation to social values, social welfare laws and programs, and the system's characteristic of service delivery. The nature and causes of social problems in the United States, such as poverty, crime, mental illness, homelessness, ageism, sexism, and racism are examined through conservative, liberal and progressive perspectives, including how these perspectives have impacted social policy development. Students will explore the inter-relatedness of policy, problems, and programs. C or better is required for majors.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity

**SOCW 2010 Survey Of The Social Work Profession**

[4 credit hours]

This course provides an opportunity for the student to explore the dynamics of the social work profession. The student will examine various components of social work, including an overview of the strengths perspective, systems theory, ethics, client populations served, roles of social workers who serve these populations, and APA style of professional writing. The course also includes sixty hours of supervised field experience and directed classroom discussion connecting field experience to social work practice. NOTE: Students will need to provide their own transportation to the off-site field experience as a requirement for this course.

**Prerequisites:** SOCW 1030 (may be taken concurrently) with a minimum grade of C**Term Offered:** Spring, Summer, Fall**SOCW 2210 Field Experience And Lab I**

[3 credit hours]

Supervised field experience. Ninety hours evenly distributed with weekly directed classroom discussion of reflecting the relationship of field experience to social work practice. This course meets the WAC requirements, and journaling and written classroom exercises will be required.

**Prerequisites:** SOCW 2010 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**SOCW 3040 Social Work With Older Adults**

[3 credit hours]

History and development of practice with older adults. Trends in aging, services for older adults, health care, social security, retirement, elder abuse, substitute care decision, hospice, loss, death and dying.

**Term Offered:** Spring, Summer**SOCW 3060 Social Work Ethics**

[3 credit hours]

Examination of social work values and their professional implications. Provision of working knowledge of Social Work Code of Ethics and licensing and subsequent professional responsibilities. Integration of theoretical models with practice situations.

**Term Offered:** Spring, Summer**SOCW 3070 Child Welfare I**

[3 credit hours]

Child welfare history. Knowledge, concepts and skill development concerning child maltreatment and protection, risk assessment and family-centered services.

**Prerequisites:** SOCW 2010 with a minimum grade of C**Term Offered:** Fall**SOCW 3080 Women In Poverty**

[3 credit hours]

Provides an understanding of women's poverty and its perpetuation through marriage and divorce, women's work and wages, welfare, children, child support and the economics of the unpaid women's labor.

**Term Offered:** Spring, Summer, Fall**SOCW 3090 Social Work Perspectives On Culture And Oppression**

[3 credit hours]

Focus is on vulnerable and oppressed groups who are among social welfare consumers. Cultural characteristics and group strengths, needs, priorities and experiences within the context of social work are also explored.

**Prerequisites:** SOCW 2010 with a minimum grade of C**Term Offered:** Spring, Fall**SOCW 3110 Social Work Practice I**

[3 credit hours]

An overview of generalist social work practice with various system sizes. Emphasizes strengths, empowerment, social and economic justice, ethical practice, and examination of self in relation to professional social work.

**Prerequisites:** SOCW 2010 with a minimum grade of C**Term Offered:** Fall

**SOCW 3120 Social Work Interviewing And Recording**

[4 credit hours]

Develops skills needed for the generalist social work interview and appropriate recording techniques. Integrates computer simulation, role-play and video recording for a participatory learning experience.

**Prerequisites:** SOCW 3110 with a minimum grade of C

**Term Offered:** Spring

**SOCW 3170 Child Welfare II**

[3 credit hours]

Addresses the developmental and permanence needs of children, effects of maltreatment on children, placement issues, separation, reunification and adoption. Includes child welfare services for children with developmental disabilities.

**Prerequisites:** (SOCW 3070 with a minimum grade of C and SOCW 2010 with a minimum grade of C)

**Term Offered:** Spring

**SOCW 3210 Human Behavior in the Soc Environment I**

[3 credit hours]

Theoretical social-work related approaches to understanding human behavior and related biological, psychological, social, cultural and environmental factors affecting individuals, families and groups, from infancy to adolescence, within the context of diversity.

**Prerequisites:** SOCW 2010 with a minimum grade of C

**Term Offered:** Fall

**SOCW 3220 Human Behavior In Social Environment II**

[3 credit hours]

Theoretical social work - related approaches to understanding human behavior and related biological, psychological, social, cultural and environmental factors affecting individual, family and group behavior, from young adulthood to old age.

**Prerequisites:** SOCW 3210 with a minimum grade of C

**Term Offered:** Spring

**SOCW 3230 Human Behavior in the Social Environment III**

[3 credit hours]

This course provides a view of behavior of larger systems including groups, organizations, and communities through a strengths perspective, focusing on social and economic justice, and the values of the social work profession.

**Prerequisites:** SOCW 3210 with a minimum grade of C

**Term Offered:** Spring, Fall

**SOCW 3300 Social Policy And Legislation**

[3 credit hours]

An examination of current social welfare issues and theories and the significance to the social, economic and political factors which influence policymaking and implementation.

**Prerequisites:** PSC 1200 with a minimum grade of C

**Term Offered:** Summer, Fall

**SOCW 3410 Social Work Research Practicum I**

[3 credit hours]

Presentation of basic methods used in social work research. Practice based methods are emphasized. Course content will focus on scientific methods of building knowledge for evidence-based social work practice.

**Prerequisites:** SOCW 2010 with a minimum grade of C

**Term Offered:** Fall

**SOCW 3420 Social Work Research Practicum II**

[3 credit hours]

Develop student competency in use of statistical applications in applied social work research. Entails continuation and completion of community-based research project started in Research Practicum I.

**Prerequisites:** SOCW 3410 with a minimum grade of C

**Term Offered:** Spring

**SOCW 3510 Interpersonal Practice with Lesbian, Gay, Bisexual, Transgender and Queer Individuals**

[3 credit hours]

This course will provide an introduction and overview of sexual orientation and gender identity and expand understanding of how to implement affirmative models of practice with LGBTQ individuals, families and communities. Course content will include: perspectives on gender, identity formation, impact of homophobia, biphobia, and transphobia, affirming interventions with lesbian, gay, bisexual and transgendered persons, families, youth, communities and aging; and specific challenges facing the LGBT communities such as homelessness, domestic violence, bullying, and policy.

**Term Offered:** Spring, Summer, Fall

**SOCW 3520 Human Animal Interaction, Health and Wellness**

[3 credit hours]

The majority of households in the United States have a companion animal. This course provides an overview of how human-animal interactions (HAI) and the human-animal bond (HAB) impact human health and well-being. Topics include: the social, physical and emotional/psychological impacts across the lifespan; therapeutic roles of animals; animal welfare and ethical considerations; and the connection between violence toward people and violence toward animals.

**Term Offered:** Spring, Summer, Fall

**SOCW 3530 Health Care Social Work Experiences with Interprofessional Teaming**

[1-3 credit hours]

Students will be introduced to the unique demands of health care social work (3 credits more content and more assignments). Students will utilize generalist skills developed in their BSW program to negotiate the interdisciplinary classroom by participating in real-world problem solving and simulations by joining students from across the University of Toledo campuses and the free clinic to learn how to be an integral part of health care with an emphasis on just service delivery.

**Term Offered:** Fall

**SOCW 4120 Social Work Practice II**

[3 credit hours]

Provides advanced theory and skill development as a generalist social worker with organizations and communities. Emphasis is on a strengths and empowerment perspective focused on social and economic justice.

**Prerequisites:** SOCW 3110 with a minimum grade of C and SOCW 3120 with a minimum grade of C

**Term Offered:** Fall

**SOCW 4130 Social Work Practice III**

[3 credit hours]

Provides advanced theory and skill development as a generalist social worker with individuals, families and groups. Emphasis is on a strengths and empowerment perspective focused on social and economic justice.

**Prerequisites:** SOCW 4120 with a minimum grade of C and SOCW 4200 with a minimum grade of C and SOCW 4220 with a minimum grade of C

**Term Offered:** Spring

**SOCW 4200 Field Seminar II**

[1 credit hour]

Integration of field experience and proactive principles.

**Corequisites:** SOCW 4120, SOCW 4220

**Term Offered:** Fall

**SOCW 4210 Field Seminar III**

[1 credit hour]

Integration of field experience and proactive principles.

**Prerequisites:** SOCW 4120 with a minimum grade of C and SOCW 4200 with a minimum grade of C and SOCW 4220 with a minimum grade of C

**Corequisites:** SOCW 4230

**Term Offered:** Spring

**SOCW 4220 Social Work Field Experience II**

[5 credit hours]

A professional experience in generalist social work practice with an integration of classroom learning with practice in a social agency. Must be taken in successive semesters during a single academic year. Application for entry to field placement must be submitted to social work office during spring semester prior to fall placement.

**Corequisites:** SOCW 4200

**Term Offered:** Fall

**SOCW 4230 Field Experience III**

[5 credit hours]

A professional experience in generalist social work practice with an integration of classroom learning with practice in a social agency. Must be taken in successive semesters during a single academic year. Application for entry to field placement must be submitted to social work office during spring semester prior to fall placement.

**Prerequisites:** SOCW 4220 with a minimum grade of C and SOCW 4200 with a minimum grade of C and SOCW 4120 with a minimum grade of C

**Corequisites:** SOCW 4210

**Term Offered:** Spring

**SOCW 4980 Special Issues In Social Work**

[1-3 credit hours]

Courses on various social work specialties. May be repeated in different topics.

**Term Offered:** Spring, Summer, Fall

**SOCW 4990 Independent Study In Social Work**

[1-3 credit hours]

Designed for advanced students in social work to pursue supervised independent study in unlisted subject areas or to continue course work in greater depth. Written proposal required.

**Term Offered:** Spring, Summer, Fall

# Associate of Applied Science in Legal and Paralegal Studies

The University of Toledo offers an associate of applied science degree in legal and paralegal studies. This degree requires 60 credit hours for graduation. A dynamic field of study, the program in legal and paralegal studies prepares students to be an integral part of the legal team, working under the supervision and direction of attorneys. Paralegals assist attorneys by conducting interviews and investigations, researching cases, drafting legal documents, and assisting at real estate closings, depositions and trials. The associate degree program holds prestigious American Bar Association approval.

The degree program includes academic course work and practical experiences designed to develop the knowledge, critical thinking and communication skills necessary for contributing to the legal profession. All of the program faculty are licensed attorneys, judges and magistrates and are available for career advising.

Code	Title	Hours
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Math Elective-Math for Liberal Arts or College Algebra		3
Social Sciences Core		3
Art/Humanities Core		3
LGL 1010	Introduction To Law	3
LGL 1150	Tort Law	3
LGL 1160	Legal Research, Writing And Case Analysis	3
LGL 1720	Law Practice Management	3
LGL 2020	Civil Procedure	3
LGL 2110	Estate & Probate Administration	3
LGL 2120	Real Estate Transactions	3
LGL 2940	Legal Assisting Internship	3
LGL Electives		3
CMPT-Computer Science Elective		3
ACTG 1040	Principles Of Financial Accounting	3

Below is a sample plan of study. Consult your degree audit for your program requirements.

AAS in Legal and Paralegal Studies

First Term		Hours
HHS 1000	Health And Human Services/College Orientation	1
LGL 1010	Introduction To Law	3
LGL 1720	Law Practice Management	3
LGL 2120	Real Estate Transactions	3
MATH 1180 or MATH 1320	Reasoning With Mathematics or College Algebra	3
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>16</b>



**Second Term**

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
LGL 1150	Tort Law	3
LGL 1160	Legal Research, Writing And Case Analysis	3
LGL 2110	Estate & Probate Administration	3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>

**Third Term**

BUAD 2040 or ACTG 1040	Financial Accounting Information or Principles Of Financial Accounting	3
LGL 2020	Civil Procedure	3
Law Elective (see below)		3
Arts/Humanities Core		3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>

**Fourth Term**

BUAD 1020 or CMPT 1100	Micro-Computer Applications In Business or Microsoft Office Applications	3
LGL 2940	Legal Assisting Internship	3
Law Elective (see below)		3
Arts/Humanities Core		3
Elective		2
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>60</b>

**Law Electives**

Code	Title	Hours
LGL 2130	Family Law	3
LGL 2210	Practices And Procedures In Administrative Law	3
LGL 2700	Advocacy: Mock Trial	3
LGL 3010	Law Of Business Associations	3
LGL 3030	Advanced Legal Research & Writing	3
LGL 3050	Bankruptcy Practices & Consumer Applications	3
LGL 3330	Litigation	3
LGL 4030	Contract Law	3
LGL 4130	Clinic Experience	3

- PLO 1. Develop the student's organizational, interpersonal, and communication skills which will enhance the student's ability to contribute to the student's legal environment upon graduation;
- PLO 2. Illustrate a broad understanding of legal concepts in a variety of substantive areas;
- PLO 3. Develop critical thinking skills and learn to express legal concepts clearly and briefly by adherence to the rudiments of successful legal writing: precision, conciseness, simplicity, and clarity;
- PLO 4. Demonstrate competence in legal issues involving personal injury, medical malpractice, workers compensation, wrongful death, and social security;

- PLO 5. Formulate legal arguments produce opening statements, direct and cross examinations and closing arguments.
- PLO 6. Research legal issues and prepare motions, briefs and pleadings and other legal documents.
- PLO 7. Be able to identify, give examples of and interpret ethics issues relative to the practice of law.

**BS in Criminal Justice**

The University of Toledo offers a bachelor of science degree in criminal justice. The degree requires 120 credit hours for graduation. The criminal justice program prepares students to enter law enforcement, corrections, probation, parole, private security, juvenile justice, social services and related careers. In addition, the B.S. program provides preparation for students who wish to attend graduate school in criminal justice, a related field, or law school.

The undergraduate curriculum consists of a liberal arts core, criminal justice core and electives, general electives and supporting courses from related disciplines (e.g., political science, public administration, sociology, history, business and social work) to form an understanding of justice. Because good communication and computer skills are important to the criminal justice professional and to students planning to attend graduate or law school, courses in writing, speaking and computer use are part of the curriculum. The faculty is committed not only to teaching about criminal justice systems but also to challenging students to explore the concept of justice and to develop their own ethical paradigms. Accordingly, course work in ethics is required. Faculty members emphasize the development of critical thinking as well as analytical and problem-solving skills in their instruction.

The entire bachelor of science degree in criminal justice can be completed online.

Check with the criminal justice program for specific information on opportunities and qualifications to attend a police academy as a UToledo student.

Required courses. Grade of "C" or better required.

Code	Title	Hours
CRIM 1010	Criminal Justice	3
CRIM 1040	HUMAN RELATIONS AND DIVERSITY IN CRIMINAL JUSTICE	3
CRIM 1110	Penology	3
CRIM 1240	Policing	3
CRIM 2050	Applied Criminology	3
CRIM 2200	Criminal Law	3
CRIM 2230	Criminal Procedure	3
CRIM 2250	Juvenile Justice	3
CRIM 3210	Applied Psychology for Criminal Justice Personnel	3
CRIM 4100	Criminal Justice Research Methods	3
CRIM 4200	Ethics In Criminal Justice	3
CRIM 4590	Administration Of Criminal Justice	3

*Criminal Justice Electives (select a minimum of six courses)*

CRIM 2210	Criminal Investigation I	
CRIM 2220	Laws Of Evidence	



CRIM 3110	Hate Crimes
CRIM 3220	
CRIM 3230	
CRIM 3240	Victimology
CRIM 3250	Women and Crime
CRIM 3290	Criminal Investigation II
CRIM 3300	Sex Crimes
CRIM 4000	Narcotics Policy and Enforcement
CRIM 4010	Probation and Parole
CRIM 4410	Criminal Forensic and Trial Practice
CRIM 4450	Administration Of Police Services
CRIM 4490	Current Topics-Crim
CRIM 4520	Police And Society
CRIM 4940	Criminal Justice Internships
CRIM 4990	Independent Study In Criminal Justice

Below is a sample plan of study. Consult your degree audit for your program requirements.

## BS in Criminal Justice

First Term	Hours
BUAD 1020	3
or CMPT 1100	
Micro-Computer Applications In Business or Microsoft Office Applications	
CRIM 1010	3
Criminal Justice <sup>1</sup>	
CRIM 1040	3
HUMAN RELATIONS AND DIVERSITY IN CRIMINAL JUSTICE <sup>1</sup>	
HHS 1000	1
Health And Human Services/College Orientation	
ENGL 1110	3
College Composition I	
SOC 1010	3
Introduction To Sociology	
<b>Hours</b>	<b>16</b>
<b>Second Term</b>	
CRIM 1110	3
Penology <sup>1</sup>	
CRIM 1240	3
Policing <sup>1</sup>	
ENGL 1130	3
College Composition II: Academic Disciplines And Discourse	
MATH 1180	3
Reasoning With Mathematics	
Diversity of US	3
<b>Hours</b>	<b>15</b>
<b>Third Term</b>	
CRIM 2200	3
Criminal Law <sup>1</sup>	
CRIM 2230	3
Criminal Procedure <sup>1</sup>	
Arts/Humanities Core	3
Natural Sciences Core	3
Core Elective (2000-level)	3
<b>Hours</b>	<b>15</b>
<b>Fourth Term</b>	
CRIM 2050	3
Applied Criminology <sup>1</sup>	
CRIM 2250	3
Juvenile Justice <sup>1</sup>	
PSC 1200	3
American National Government	

Natural Sciences Core	3
Natural Sciences Core Laboratory	1
Elective (2000-level)	3
<b>Hours</b>	<b>16</b>

Fifth Term	Hours
PSY 1010	3
Principles Of Psychology	
Criminal Justice Elective (Upper-level) <sup>1</sup>	3
Arts/Humanities Core	3
Non-US Diversity	3
Core Elective	3
<b>Hours</b>	<b>15</b>

Sixth Term	Hours
CRIM 3210	3
Applied Psychology for Criminal Justice Personnel <sup>1</sup>	
CRIM 4100	3
Criminal Justice Research Methods <sup>1</sup>	
Criminal Justice Elective (Upper-level) <sup>1</sup>	3
Elective (2000-level)	6
<b>Hours</b>	<b>15</b>

Seventh Term	Hours
CRIM 4200	3
Ethics In Criminal Justice <sup>1</sup>	
CRIM 4590	3
Administration Of Criminal Justice <sup>1</sup>	
Elective (2000-level)	6
Criminal Justice Elective (Upper-level) <sup>1</sup>	3
<b>Hours</b>	<b>15</b>

Eighth Term	Hours
Criminal Justice Elective (Upper-level) <sup>1</sup>	3
Criminal Justice Elective (Upper-level) <sup>1</sup>	3
Elective	4
Criminal Justice Elective (Upper-level) <sup>1</sup>	3
<b>Hours</b>	<b>13</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> A "C" or better is required for this course.

- PLO 1. Students graduating from this program will demonstrate competence in Administration of Justice (CRIM 4590; Contemporary criminal justice system, major systems of social control and their policies and practices).
- PLO 2. Students graduating from this program will demonstrate competence in Corrections (CRIM 1110; History, theory, practice and legal environment, development of correctional philosophy, incarceration, diversions, community-based corrections, treatment of offenders).
- PLO 3. Students graduating from this program will demonstrate competence in Criminological Theory (CRIM 2050; The nature and causes of crime, typologies, offenders, and victims as well as the public policies associated with the criminological theories).
- PLO 4. Students graduating from this program will demonstrate competence in Law Adjudication (CRIM 220 and CRIM 2230; Criminal law, criminal procedures, prosecution, defense, and court procedures and decision-making).



- PLO 5. Students graduating from this program will demonstrate competence in Law Enforcement (CRIM 1240; History, theory, practice and legal environment, police organization, discretion, and subculture).
- PLO 6. Students graduating from this program will demonstrate competence in Research and Analytic Methods (CRIM 4100; Quantitative-including statistics-and qualitative, methods for conducting and analyzing criminal justice research in a manner appropriate for undergraduate degree students).

## BS in Legal and Paralegal Studies

The University of Toledo offers a bachelor of science degree in legal and paralegal studies. The degree requires 120 credit hours for graduation. A dynamic field of study, the program in legal and paralegal studies prepares students to be an integral part of the legal team, working under the supervision and direction of attorneys. Paralegals assist attorneys by conducting interviews and investigations, researching cases, drafting legal documents, and assisting at real estate closings, depositions and trials. The baccalaureate degree program holds prestigious American Bar Association approval.

The degree program includes academic course work and practical experiences designed to develop the knowledge, critical thinking and communication skills necessary for contributing to the legal profession. All of the program faculty are licensed attorneys, judges and magistrates and are available for career advising.

### Pre-law studies

No particular degree is required for admission to law school. Successful law students must possess good communication, logic and analytical skills, and have a fundamental understanding of the legal system. The legal and paralegal studies program provides students with an excellent pre-law program by teaching those important skills. Graduates with a baccalaureate degree in legal and paralegal studies who meet certain criteria will receive guaranteed admission to The University of Toledo College of Law. Contact the program office at 419.530.7746 for more information.

Code	Title	Hours
LGL 1010	Introduction To Law	3
LGL 1150	Tort Law	3
LGL 1160	Legal Research, Writing And Case Analysis	3
LGL 1720	Law Practice Management	3
LGL 2020	Civil Procedure	3
LGL 2110	Estate & Probate Administration	3
LGL 2120	Real Estate Transactions	3
LGL 2130	Family Law	3
LGL 2210	Practices And Procedures In Administrative Law	3
LGL 2700	Advocacy: Mock Trial	3
LGL 2940	Legal Assisting Internship	3
LGL 3010	Law Of Business Associations	3
LGL 3030	Advanced Legal Research & Writing	3
LGL 3050	Bankruptcy Practices & Consumer Applications	3
LGL 3330	Litigation	3
LGL 4030	Contract Law	3

LGL 4130	Clinic Experience	3
LGL 4940	Advanced Paralegal Internship	3
Four LGL Electives (see list of options)		10
CMPT-Computer Science Elective		3
ACTG 1040	Principles Of Financial Accounting or BUAD 2040 Financial Accounting Information	3
OPR-Elective-General Elective		10
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Diversity Non-US		3
Diversity US		3
Art/Humanities Core		6
Natural Science Core		3
Natural Science Core Laboratory		1
Social Sciences Core		3
Math Elective-Math for Liberal Arts or College Algebra		3
Core Electives		9
Philosophy (3-4000 level)		3
<b>Total Hours</b>		<b>120</b>

Below is a sample plan of study. Consult your degree audit for your program requirements.

### BS in Legal and Paralegal Studies

First Term		Hours
ENGL 1110	College Composition I	3
HHS 1000	Health And Human Services/College Orientation	1
LGL 1010	Introduction To Law	3
LGL 1720	Law Practice Management	3
LGL 2120	Real Estate Transactions	3
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>16</b>
Second Term		Hours
BUAD 1020 or CMPT 1100	Micro-Computer Applications In Business or Microsoft Office Applications	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
LGL 1150	Tort Law	3
LGL 1160	Legal Research, Writing And Case Analysis	3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>
Third Term		Hours
BUAD 2040 or ACTG 1040	Financial Accounting Information or Principles Of Financial Accounting	3
LGL 2020	Civil Procedure	3
LGL 2130	Family Law	3
LGL 2700	Advocacy: Mock Trial	3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>

**Fourth Term**

LGL 2110	Estate & Probate Administration	3
LGL 2210	Practices And Procedures In Administrative Law	3
PHIL 1020	Critical Thinking	3
Arts/Humanities Core		3
Core Elective (2000-level)		3
<b>Hours</b>		<b>15</b>

**Fifth Term**

LGL 3030	Advanced Legal Research & Writing	3
LGL 3050	Bankruptcy Practices & Consumer Applications	3
Legal Specialties Option Elective <sup>1</sup>		3
Natural Sciences Core		3
Natural Sciences Core Laboratory		1
PHIL 3000/4000 Philosophy Elective		3
<b>Hours</b>		<b>16</b>

**Sixth Term**

LGL 3010	Law Of Business Associations	3
LGL 3330	Litigation	3
LGL 4130	Clinic Experience	3
Legal Specialties Option Elective <sup>1</sup>		3
Natural Sciences Core		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

LGL 4030	Contract Law	3
Legal Specialties Option Elective <sup>1</sup>		3
PHIL 3000/4000 Philosophy Elective		3
Core Elective (2000-level)		3
Non-US Diversity		3
<b>Hours</b>		<b>15</b>

**Eighth Term**

LGL 4940	Advanced Paralegal Internship	3
Legal Specialties Option Elective <sup>1</sup>		3
Core Elective (2000-level)		3
Diversity of US		3
Elective (2000-level)		1
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> At least two Legal Specialties Option Electives must be upper-level.

- PLO 1. Research legal issues and prepare motions, briefs and pleadings and other legal documents.
- PLO 2. Identify, give examples of and interpret ethics issues relative to the practice of law.
- PLO 3. Demonstrate competence in legal issues involving personal injury, medical malpractice, workers compensation, wrongful death, and social security.

- PLO 4. Formulate legal arguments produce opening statements, direct and cross examinations and closing arguments;
- PLO 5. Develop the student s organizational, interpersonal, and communication skills which will enhance the student s ability to contribute to the student s legal environment upon graduation.
- PLO 6. Illustrate a broad understanding of legal concepts in a variety of substantive areas
- PLO 7. Develop critical thinking skills and learn to express legal concepts clearly and briefly by adherence to the rudiments of successful legal writing: precision, conciseness, simplicity, and clarity.

## BSW in Social Work

The University of Toledo offers a bachelor of social work degree. This degree requires 120 credit hours for graduation. The undergraduate social work program is fully accredited by the Council on Social Work Education. The program prepares students for entry into the beginning level of professional social work practice as generalist social workers who work in a variety of system sizes with various population groups. Graduates of the program meet the educational requirements for licensing at the Licensed Social Worker (L.S.W.) level in the State of Ohio.

Students entering The University of Toledo with the intent of majoring in social work declare pre-social work as their major until they complete the requirements to apply and gain admission to the social work program.

**Prior to applying to the social work program, the student must have:**

- Completed 43 credit hours; and
- Have a minimum UToledo GPA of 2.25; and
- Have completed SOCW 1030 and SOCW 2010 with a minimum major GPA of 2.5 and a grade no less than C in each of these social work courses; and
- Have completed a satisfactory *Career Choice and Self-Assessment Essay*.

Admission to the social work program is selective; students will not be permitted to enroll in social work courses at the 3000 level or higher unless they have been admitted to the social work program. Applications are available from the social work advisor.

Students should follow and complete the degree requirements as displayed in the social work program degree chart. Students may not take PS/NC in major courses or related courses except SOCW 4220. Below is a sample plan of study. Consult your degree audit for your program requirements.

## BSW in Social Work

<b>First Term</b>		<b>Hours</b>
ENGL 1110	College Composition I	3
HHS 1000	Health And Human Services/College Orientation	1
MATH 1180	Reasoning With Mathematics	3
SOC 1010	Introduction To Sociology	3
SOCW 1030	Introduction To Social Welfare <sup>1</sup>	3



Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>
<b>Second Term</b>		
BIOL 1120	Survey Of Biology	3
ECON 1010	Introduction To Economic Issues	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Arts/Humanities Core		3
WGST Course		3
<b>Hours</b>		<b>15</b>
<b>Third Term</b>		
CMPT 1100	Microsoft Office Applications	3
PSC 1200	American National Government <sup>1</sup>	3
PSY 1010	Principles Of Psychology	3
SOCW 2010	Survey Of The Social Work Profession <sup>1</sup>	4
Elective		3
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
ANTH 2800	Cultural Anthropology	3
Natural Sciences Core		3
Natural Science Core Laboratory		1
Social Work Elective <sup>1</sup>		3
Elective		6
<b>Hours</b>		<b>16</b>
<b>Fifth Term</b>		
SOCW 3110	Social Work Practice I <sup>1</sup>	3
SOCW 3210	Human Behavior in the Soc Environment I <sup>1</sup>	3
SOCW 3300	Social Policy And Legislation <sup>1</sup>	3
SOCW 3410	Social Work Research Practicum I <sup>1</sup>	3
AFST, DST, PSY, SOC or WGST course		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
SOCW 3120	Social Work Interviewing And Recording <sup>1</sup>	4
SOCW 3220	Human Behavior In Social Environment II <sup>1</sup>	3
SOCW 3230	Human Behavior in the Social Environment III <sup>1</sup>	3
SOCW 3420	Social Work Research Practicum II <sup>1</sup>	3
SOCW 3090	Social Work Perspectives On Culture And Oppression <sup>1</sup>	3
<b>Hours</b>		<b>16</b>
<b>Seventh Term</b>		
SOCW 4120	Social Work Practice II <sup>1</sup>	3
SOCW 4200	Field Seminar II <sup>1</sup>	1
SOCW 4220	Social Work Field Experience II <sup>1</sup>	5
Diversity of US (History)		3
<b>Hours</b>		<b>12</b>
<b>Eighth Term</b>		
SOCW 4130	Social Work Practice III <sup>1</sup>	3
SOCW 4210	Field Seminar III <sup>1</sup>	1
SOCW 4230	Field Experience III <sup>1</sup>	5

Elective		5
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> A "C" or better is required in this course.

- PLO Competency 1: Demonstrate Ethical and Professional Behavior
- PLO Competency 2: Advance Human Rights and Social, Economic, and Environmental Justice
- PLO Competency 3: Engage Anti-Racism, Diversity, Equity, and Inclusion (ADEI) in Practice
- PLO Competency 4: Engage in Practice-informed Research and Research-informed Practice
- PLO Competency 5: Engage in Policy Practice
- PLO Competency 6: Engage with Individuals, Families, Groups, Organizations, and Communities
- PLO Competency 7: Assess Individuals, Families, Groups, Organizations, and Communities
- PLO Competency 8: Intervene with Individuals, Families, Groups, Organizations, and Communities
- PLO Competency 9: Evaluate Practice with Individuals, Families, Groups, Organizations, and Communities

## Departmental Honors In Social Work

Qualified juniors and seniors may apply to work for honors in social work.

The following are requirements for admission to the departmental honors program in social work:

- Minimum GPA of 3.3 in social work courses
- Minimum cumulative GPA of 3.0
- 12 hours completed work in social work, and
- Qualification as a social work major.

Upon admission to the departmental honors program in social work, the student must complete nine hours of independent work in social work. During the final semester before graduation, the student must pass a comprehensive examination or complete a research project. The honors topic and research project are to be developed in close conjunction with a faculty advisor. Students should discuss their special interests with faculty members or with an advisor who will help identify an appropriate faculty member to guide the honors work.

## Certificate in Chemical Dependency Counseling

The University of Toledo offers a certificate in chemical dependency counseling. This undergraduate certificate program will help students meet the academic requirements for licensure as a Licensed Chemical Dependency Counselor II or Licensed Chemical Dependency Counselor III in the State of Ohio. For current state requirements, please visit the State of Ohio Chemical Dependency Professionals Board at <https://ocdp.ohio.gov/>.

The undergraduate certificate in chemical dependency counseling requires a minimum of 22 credit hours as follows:

Code	Title	Hours
COUN 1240	Substance Abuse Issues In Mental Health	3
COUN 2120	Group And Therapeutic Approaches	4
COUN 3140	Substance Abuse Prevention And Community Programming	3
COUN 3150	Models Of Treatment For Substance Abuse	3
COUN 4240	Substance Abuse Treatment Techniques	3
HEAL 3300	Drug Awareness	3
COUN 3000	Cultural Competence in Health and Human Services Professions	3
<b>Total Hours</b>		<b>22</b>

- PLO 1: Students will learn the necessary knowledge and skills for chemical dependency counseling.

## Certificate in Nurse Paralegal

The University of Toledo offers a nurse paralegal certificate program. This is a 21 credit hour program for students who have at least an associate's degree in nursing, hold a current R.N. license, and have at least 2,000 hours of nursing experience.

The nurse paralegal certificate program prepares practicing nurses for careers in law where medical education and experience are needed. Examples of these areas of the law are medical malpractice, personal injury, workers compensation, wrongful death and social security. [The certificate program includes academic course work and practical experiences designed to develop the knowledge, critical thinking and communication skills necessary for contributing to the legal profession.](#)

[A dynamic field of study, the program in legal and paralegal studies prepares students to be an integral part of the legal team, working under the supervision and direction of attorneys. Paralegals assist attorneys by conducting interviews and investigations, researching cases, drafting legal documents, and assisting at real estate closings, depositions and trials. The certificate program holds prestigious American Bar Association approval.](#) All of the program faculty are licensed attorneys, judges and magistrates and are available for career advising.

Code	Title	Hours
LGL 1010	Introduction To Law	3
LGL 1720	Law Practice Management	3
LGL 2020	Civil Procedure	3
LGL 1150	Tort Law	3
LGL 1160	Legal Research, Writing And Case Analysis	3
LGL 2210	Practices And Procedures In Administrative Law	3
LGL 2940	Legal Assisting Internship	3
<b>Total Hours</b>		<b>21</b>

Below is a sample curriculum for the certificate program. Sample curriculum is subject to change. Please consult the department for up-to-date information.

The certificate requires 21 credit hours for completion.

### Nurse Paralegal Certificate

First Term		Hours
LGL 1010	Introduction To Law	3
LGL 1720	Law Practice Management	3
LGL 2020	Civil Procedure	3
<b>Hours</b>		<b>9</b>
Second Term		Hours
LGL 1150	Tort Law	3
LGL 1160	Legal Research, Writing And Case Analysis	3
LGL 2210	Practices And Procedures In Administrative Law	3
<b>Hours</b>		<b>9</b>
Third Term		Hours
LGL 2940	Legal Assisting Internship	3
<b>Hours</b>		<b>3</b>
<b>Total Hours</b>		<b>21</b>

- PLO 1. Develop the student s organizational, interpersonal, and communication skills which will enhance the student s ability to contribute to the student s legal environment upon graduation;
- PLO 2. Illustrate a broad understanding of legal concepts in a variety of substantive areas.
- PLO 3. Develop critical thinking skills and learn to express legal concepts clearly and briefly by adherence to the rudiments of successful legal writing: precision, conciseness, simplicity, and clarity.
- PLO 4. Demonstrate competence in legal issues involving personal injury, medical malpractice, workers compensation, wrongful death, and social security.
- PLO 5. Formulate legal arguments produce opening statements, direct and cross examinations and closing arguments.
- PLO 6. Research legal issues and prepare motions, briefs and pleadings and other legal documents.
- PLO 7. Be able to identify, give examples of and interpret ethics issues relative to the practice of law.

## Minor in Data Science

The minor in data science is designed to teach functional data science skills that supplement virtually any major. Through "hands on" exercises, students will learn to write computer code, design multi-source data files, and analyze, visualize, and report data findings using popular software such as SAS (or R), Python, SQL, Excel and Tableau. In the customized capstone course, each student will analyze data that are relevant to a subject of interest, such as social science, health science, business, or engineering.

The minor requires 22 credit hours. All courses listed below are required.

Code	Title	Hours
CSET 1100	Introduction to Computer Science and Engineering Technology	4



CSET 3300	Database-Driven Web Sites	4
HHS 2500	Data Science I	3
HHS 4500	Data Science II	3
HIM 2260	Legal Issues in HIM	2
MATH 3610	Statistical Methods I	3
MATH 3620	Statistical Methods II	3
<b>Total Hours</b>		<b>22</b>

## Minor in Counseling

The counseling minor allows undergraduates to learn basic concepts and skills used in the counseling profession including counseling theories and skills, substance abuse treatment and prevention, and case management. The minor will not lead to licensure or certification but is a sound foundation for students wishing to pursue a master's degree in counseling or other helping professions.

The counseling minor requires a minimum of 19 credit hours as follows:

Code	Title	Hours
<b>Required Course</b>		
COUN 1110	Fundamentals Of Human Mental Health	4
<b>Electives</b>		
Select 15 hours of the following (At least 8 hours must be at 3000 or 4000 level):		15
COUN 1240	Substance Abuse Issues In Mental Health	
COUN 2120	Group And Therapeutic Approaches	
COUN 2220	Family Theories And Cultural Influences In Mental Health	
COUN 3000	Cultural Competence in Health and Human Services Professions	
COUN 3110	Case Management In Mental Health	
COUN 3140	Substance Abuse Prevention And Community Programming	
COUN 3150	Models Of Treatment For Substance Abuse	
COUN 3220	Theories in Mental Health	
COUN 4080	Essentials Of Helping Relationships	
COUN 4240	Substance Abuse Treatment Techniques	
SPSY 3100	Psychological Testing and Assessment	
<b>Total Hours</b>		<b>19</b>

- PLO 1) Students will understand the fundamentals of human mental health including common counseling theories.
- PLO 2) Students will identify helping professions and careers where counseling skills can be applied.
- PLO 3) Students will be able to apply counseling theories and models of service delivery to diverse populations and various presenting mental health concerns.

## Minor in Criminal Justice

The minor in criminal justice gives the student an overview of the criminal justice discipline. It includes an introductory course and a foundation course in each of the four areas recommended by the Academy of

Criminal Justice Sciences (i.e., penology, policing, constitutional law and juvenile justice). The remaining six hours give the student freedom to explore areas of interest in criminal justice. The minor requires 21 credit hours for completion. Grades of "C" or better required in all CRIM courses.

Code	Title	Hours
<b>Required</b>		
CRIM 1010	Criminal Justice	3
CRIM 1110	Penology	3
CRIM 1240	Policing	3
CRIM 2230	Criminal Procedure	3
CRIM 2250	Juvenile Justice	3
Select 6 hours of CRIM Electives at the 3000/4000 level		
CRIM 3110	Hate Crimes	3
CRIM 3220		
CRIM 3230		
CRIM 3240	Victimology	3
CRIM 3250	Women and Crime	3
CRIM 3290	Criminal Investigation II	3
CRIM 3300	Sex Crimes	3
CRIM 4000	Narcotics Policy and Enforcement	3
CRIM 4010	Probation and Parole	3
CRIM 4410	Criminal Forensic and Trial Practice	3
CRIM 4450	Administration Of Police Services	3
CRIM 4490	Current Topics-Crim	3
CRIM 4520	Police And Society	3
CRIM 4940	Criminal Justice Internships	3-12
CRIM 4990	Independent Study In Criminal Justice	1-3

## Minor in Forensic Science Investigation

The minor in forensic science investigation provides an overview of the importance of forensic science evidence in the criminal justice system. Students learn about:

- the rules and procedures of evidence pertaining to admissibility of scientific and physical material;
- the basic methods of collection, preservation and analysis of evidence; and
- the methods of presentation of evidence in court.

This minor is designed for students planning to work for law enforcement agencies to better understand the importance and types of forensic science evidence in criminal investigations. It is not designed for students who plan to work in a crime laboratory or in jobs requiring in-depth scientific analysis of evidence. Those students interested in forensic science will need to obtain a degree (preferably at the graduate level) in the natural sciences. Grades of "C" or better required for all CRIM courses.

Code	Title	Hours
<b>Required <sup>1</sup></b>		
BIOL 2010	Major Concepts In Biology	3

CHEM 1100	Chemistry And Society	3
CHEM 1150	Chemistry And Society Laboratory	1
CRIM 2210	Criminal Investigation I	3
CRIM 2220	Laws Of Evidence	3
CRIM 3290	Criminal Investigation II	3
CRIM 4940	Criminal Justice Internships	3
EXSC 1560	Fundamentals of Anatomy and Physiology	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
<b>Total Hours</b>		<b>23</b>

<sup>1</sup> Students will be responsible for meeting all of the prerequisites and co-requisites for the required courses in the minor.

## Minor in Legal Specialties

The minor in legal specialties requires 21 credit hours. It includes academic course work and practical experiences designed to develop the knowledge, critical thinking and communication skills necessary for contributing to the legal profession. All of the program faculty are licensed attorneys, judges and magistrates and are available for career advising.

Code	Title	Hours
<b>Required Course</b>		
LGL 1010	Introduction To Law	3
LGL 1150	Tort Law	3
LGL 2120	Real Estate Transactions	3
<b>Electives</b>		
Select four of the following:		12
LGL 1160	Legal Research, Writing And Case Analysis	
LGL 2020	Civil Procedure	
LGL 2110	Estate & Probate Administration	
LGL 2130	Family Law	
LGL 2700	Advocacy: Mock Trial	
LGL 3010	Law Of Business Associations	
LGL 3110	Personal Law (Prereq. Junior Standing or Instructor Permission)	
LGL 3120	Personal Law II	
LGL 4030	Contract Law	
LGL 4230	Health Care And The Law (Prereq. Junior Standing or Instructor Permission)	
LGL 4330	Mediation: Topics And Techniques	
<b>Total Hours</b>		<b>21</b>

## Post Baccalaureate Certificate in Legal and Paralegal Studies

The University of Toledo offers a post-baccalaureate certificate in legal and paralegal studies. This certificate requires 30 credit hours for graduation. An earned bachelor's degree is required for admission to the certificate program.

A dynamic field of study, the program in legal and paralegal studies prepares students to be an integral part of the legal team, working under the supervision and direction of attorneys. Paralegals assist attorneys by conducting interviews and investigations, researching cases, drafting legal documents, and assisting at real estate closings, depositions and trials. The certificate program holds prestigious American Bar Association approval.

The post-baccalaureate certificate program includes academic course work and practical experiences designed to develop the knowledge, critical thinking and communication skills necessary for contributing to the legal profession. All of the program faculty are licensed attorneys, judges and magistrates and are available for career advising.

Code	Title	Hours
LGL 1010	Introduction To Law	3
LGL 1720	Law Practice Management	3
LGL 2020	Civil Procedure	3
LGL 2120	Real Estate Transactions	3
LGL 1150	Tort Law	3
LGL 1160	Legal Research, Writing And Case Analysis	3
LGL 2110	Estate & Probate Administration	3
LGL 2940	Legal Assisting Internship	3
LGL Electives		6
<b>Total Hours</b>		<b>30</b>

Below is a sample curriculum for the Post Baccalaureate Certificate in Legal and Paralegal Studies program. Sample curriculum is subject to change. Please consult the department for up-to-date information.

The certificate requires 30 credit hours for completion.

## Post Baccalaureate Certificate in Legal and Paralegal Studies

First Term	Hours
LGL 1010 Introduction To Law	3
LGL 1720 Law Practice Management	3
LGL 2020 Civil Procedure	3
LGL 2120 Real Estate Transactions	3
Law Elective (see below)	3
<b>Hours</b>	<b>15</b>
Second Term	Hours
LGL 1150 Tort Law	3
LGL 1160 Legal Research, Writing And Case Analysis	3
LGL 2110 Estate & Probate Administration	3
LGL 2940 Legal Assisting Internship <sup>1</sup>	3
Law Elective (see below)	3
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>30</b>

<sup>1</sup> Although the Legal Assisting Internship may be taken by post-baccalaureate certificate students during their second semester,



it is strongly suggested that it be taken alone in the student's third semester.

## Law Electives

Code	Title	Hours
LGL 2130	Family Law	3
LGL 2210	Practices And Procedures In Administrative Law	3
LGL 2700	Advocacy: Mock Trial	3
LGL 3010	Law Of Business Associations	3
LGL 3030	Advanced Legal Research & Writing	3
LGL 3050	Bankruptcy Practices & Consumer Applications	3
LGL 3330	Litigation	3
LGL 4030	Contract Law	3
LGL 4130	Clinic Experience	3

- PLO 1 Maintain prestigious approval by the American Bar Association.
- PLO 2 Design new courses and review existing courses for possible improvement and updating.
- PLO 3 Implement innovative teaching methods and technology.
- PLO 4 Requires students to demonstrate communication skills.
- PLO 5 Require students to research and analyze legal and ethical issues applying appropriate legal and ethical standards.
- PLO 6 Require completion of "real world" projects
- PLO 7 Require completion of internship
- PLO 8 Offer mock trial experience within inter-collegiate setting
- PLO 9 Offer mediation experience within clinic setting
- PLO 10 Provide networking opportunities with professional associations
- PLO 11 Provide community outreach through service learning opportunities

## Department of Population Health

Joseph Dake, Chair and Public Health Program Director  
 Kip Miller, Healthcare Administration Program Director  
 Nilgun Sezginis, Health Information Administration Program Director  
 April Demers, Health Sciences BA Program Director  
 Sarah Long, Health Sciences BS Program Director

The Department of Population Health offers undergraduate degree programs in healthcare administration, health information administration, health sciences, and public health. Minors in health sciences and public health are available.

## Accreditation

- The Health Information Administration program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM).

### Degrees Offered

- BS in Healthcare Administration (p. 332)
- BS in Health Information Administration (p. 334)

- BA in Health Sciences (p. 294)
- BS in Health Sciences (p. 298)
- BS in Public Health (p. 348)
- Minor in Health Sciences (<https://catalog.utoledo.edu/undergraduate/health-human-services/population-health/minor-health-sciences/>)
- Minor in Public Health (p. 351)

### HCAR 3000 Introduction to Health Care Administration

[3 credit hours]

Studies the structure of the U.S. health care delivery system, provider organizations, and the health care professionals who staff these organizations. Opportunities and challenges of health care administration are discussed.

**Term Offered:** Spring, Summer, Fall

### HCAR 4360 Quality Improvement In Health Care

[3 credit hours]

Purpose and philosophy of quality assessment and system design. Selection/application of tools for data collection, analysis and problem resolution. Incorporates requirements of Joint Commission on the Accreditation of Healthcare Organizations.

**Term Offered:** Spring, Summer, Fall

### HCAR 4530 Problem Solving In Health Care Environment

[4 credit hours]

The theory, practice, and management of healthcare administration in effective decision making within the dynamics of current health care organizations.

**Prerequisites:** HCAR 3000 with a minimum grade of D- and HCAR 4360 with a minimum grade of D- and HCAR 4550 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### HCAR 4540 Internship In Health Management

[3 credit hours]

Internship in institutional health care focusing on mid-management.

**Term Offered:** Spring, Summer, Fall

### HCAR 4545 Project Management in Healthcare

[3 credit hours]

This course provides an applied approach to creating an Electronic Medical Record system project implementation plan utilizing several approaches to achieve this goal.

**Prerequisites:** HCAR 4530 with a minimum grade of D- and HCAR 4570 with a minimum grade of D- and HCAR 4580 with a minimum grade of D-

### HCAR 4550 Health Care Finance

[3 credit hours]

Study of financial problems and current sources of reimbursement to health care organizations. Emphasis on departmental financial management as integrated with financial management of organizations.

**Prerequisites:** BUAD 2050 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### HCAR 4560 Services in Healthcare

[3 credit hours]

This class will describe the services provided by hospitals, the healthcare provider teams and how departments are organized in the provision of care. This course will have specific concentration on hospital services, structure and operations.



**HCAR 4570 Resources in Healthcare**

[4 credit hours]

This four (4) hour hybrid course focuses on the study of resources in healthcare and how these resources impact the daily operations in a health care environment.

**Prerequisites:** HCAR 3000 with a minimum grade of D- and HCAR 4560 with a minimum grade of D-

**HCAR 4580 Leadership and Management in Healthcare**

[3 credit hours]

This three (3) hour class will focus on learning strategies and tools for leading and managing the unique challenges of healthcare organizations. The course will investigate the foundations of leadership, core competencies of health care leadership and techniques to hardwired goals and strategies in leadership and development of a strong organizational culture.

**Prerequisites:** HCAR 3000 with a minimum grade of D- and HCAR 4550 with a minimum grade of D- and HCAR 4560 with a minimum grade of D-

**HEAL 1310 Nutrition for Fitness & Health**

[1 credit hour]

The student will learn basic nutrition as it applies physical fitness and overall health. Students will learn principles of planning a healthful diet that meets fitness goals.

**Term Offered:** Spring, Fall

**HEAL 1320 Nutrition for Weight Management**

[1 credit hour]

The student will learn principles of weight management, nutrition as it applies to healthy weight control, and overall health and will learn to plan individual approach to healthy diet.

**Term Offered:** Spring, Fall

**HEAL 1360 Alcohol and Contemporary Issues in College Life**

[1 credit hour]

This course provides students with an overview of the health, legal, and academic risks associated with excessive alcohol consumption among college students. Various prevention and treatment issues will be examined.

**Term Offered:** Spring, Fall

**HEAL 1500 First Aid**

[2 credit hours]

Provides the knowledge, skills, and confidence necessary to provide care for victims of sudden illness and injury. CPR, AED, and First Aid certification upon successful completion of the course.

**Term Offered:** Spring, Fall

**HEAL 1700 Introduction to Health Careers**

[3 credit hours]

An introduction to health and human service careers through an examination of the health care system, health career educational requirements, job outlook, and professional settings in which they operate.

**Term Offered:** Spring, Fall

**HEAL 1800 Medical Terminology**

[3 credit hours]

Study of the origin and structure of medical words, their prefixes, suffixes, special endings and singular to plural forms. Medical terms relating to the body and to clinical procedures will be explored.

**Term Offered:** Spring, Summer, Fall

**HEAL 2000 Foundations Of Health Education**

[3 credit hours]

Designed to introduce students to the field of health education by acquainting them with basic information, history, philosophy and competencies unique to health educators.

**Term Offered:** Fall

**HEAL 2100 Living Well**

[3 credit hours]

There is a strong correlation between personal well-being, potential for success in personal/career goals, and a successful college experience. An understanding of this interconnectedness based on social and behavioral health theories and science helps students develop personalized strategies for individual success in all areas of life. This practical application course builds a core knowledge foundation in the well-being literature and helps them apply that knowledge to positive changes in their lives. These strategies and skills are based on an understanding of the qualitative and quantitative evidence from scientific studies in this area. This course is well-suited to all majors wanting a better understanding of the social and behavioral foundations of living well.

**Term Offered:** Spring, Fall

**HEAL 2400 General Safety**

[3 credit hours]

An analysis of accident causation and disasters occurring in the home, workplace and community, and the presentation of a framework for developing accident counter-measures.

**Term Offered:** Spring, Fall

**HEAL 2500 Personal Health**

[3 credit hours]

Information is presented on the prevention and control of health problems including heart disease, cancer, infectious diseases, mental health, nutrition, human sexuality and other pertinent personal health issues.

**Term Offered:** Spring, Summer, Fall

**HEAL 2600 Mental Health**

[3 credit hours]

An examination of the principles of mental health, mental illnesses, mental health professionals and mental health facilities.

**Term Offered:** Spring, Summer, Fall

**HEAL 2700 Introduction to Public Health**

[3 credit hours]

Introduces students to the structure, organization and methods of public health including an emphasis on protecting and improving the health of populations via research, needs assessment, program planning, program implementation, and program evaluation.

**Term Offered:** Spring, Fall

**HEAL 2750 Introduction to Epidemiology**

[3 credit hours]

This course provides students with a basic understanding of epidemiologic methods and study design and of the place of epidemiology in preventive and clinical medicine, disease investigation, program evaluation and public policy.

**Term Offered:** Fall

**HEAL 2800 Principles Of Nutrition**

[3 credit hours]

Students learn basic nutrition concepts. Personal nutritional practices are analyzed and evaluated to plan improvements. Encourages making informed decisions about nutrition by critically analyzing nutrition information which abounds in popular media.

**Term Offered:** Spring, Summer, Fall**HEAL 2940 Practicum In Community Health**

[2 credit hours]

Supervised field experience with community health agency. Students work under direct supervision of the agency's staff and a University supervisor.

**Term Offered:** Spring, Summer, Fall**HEAL 3000 Global Health**

[3 credit hours]

This is an introductory course focused on applying public health principles in developing as well as developed countries designed to fulfill a global studies distribution requirement.

**Term Offered:** Spring, Fall**HEAL 3300 Drug Awareness**

[3 credit hours]

Focuses on the impact of drug abuse and misuse on the individual and society. Explores physiological, psychological and rehabilitative aspects of drug misuse and abuse. Prevention strategies are discussed.

**Term Offered:** Spring, Summer, Fall**HEAL 3500 Environmental Health**

[3 credit hours]

An overview of the environmental effects of factors such as population growth, pollution, energy use, agriculture practices and waste disposal on the environment. Consideration will be given to solutions.

**Term Offered:** Spring, Summer**HEAL 3600 Prevention And Control Of Disease**

[3 credit hours]

An examination of the etiology, pathogenesis, prevention and control of acute and chronic diseases. Current techniques of prevention, control and detection are examined.

**Term Offered:** Spring, Summer, Fall**HEAL 3700 Foundations Of Human Sexuality**

[3 credit hours]

The course is designed to provide an introduction to the scientific study of human sexuality. The topic is approached from a variety of perspectives, including the historical, psychological, sociological, biological, ethical and legal.

**Term Offered:** Spring, Summer, Fall**HEAL 3800 Death And Dying**

[3 credit hours]

The course is designed to analyze the relationship between death and health with emphasis upon the biological, psychological, bioethical and legal aspects of death in contemporary society.

**Term Offered:** Spring, Summer, Fall**HEAL 4100 Health Behavior**

[3 credit hours]

Examines the major theories and models of health behavior and explores how those theories/models can be used to promote health and wellness in individuals, groups and populations.

**Prerequisites:** (HEAL 2000 with a minimum grade of B- and HEAL 2700 with a minimum grade of B-)**Term Offered:** Fall**HEAL 4200 Methods And Materials In Community Health**

[3 credit hours]

Designed for senior-level students to advance their knowledge and skills in needs assessment, program design, program implementation, program management, and program evaluation.

**Prerequisites:** HEAL 2000 with a minimum grade of D- and HEAL 2700 with a minimum grade of D- and HEAL 2750 with a minimum grade of D-**Term Offered:** Fall**HEAL 4250 Program Evaluation**

[3 credit hours]

Provides students with the fundamental knowledge of the types (formative, outcome, summative) of program evaluation and the purposes and importance behind program evaluation. Additionally, students will learn how to develop theory based evaluation methods.

**Prerequisites:** HEAL 4200 with a minimum grade of C**Term Offered:** Spring**HEAL 4400 Health Problems Of Youth**

[3 credit hours]

Provides education majors the knowledge and skills necessary to help identify, understand, and prevent preadolescent and adolescent health problems and risky health behaviors which directly impact school and future success.

**Term Offered:** Spring, Fall**HEAL 4500 Women's Health Care**

[3 credit hours]

The course is designed to consider personal health topics of special interest and applicability to women. The focus is upon the role of self-understanding and self-help in promotion of health and well-being.

**Term Offered:** Spring, Summer, Fall**HEAL 4560 Health Problems Of Aging**

[3 credit hours]

Acquaints students with physical changes and socio-psychological problems that occur with aging. Focus is on personal adjustment important in maintaining health throughout the aging process.

**Term Offered:** Spring, Summer, Fall**HEAL 4700 Nutritional Science**

[3 credit hours]

Introduces basic human nutritional needs. Examines the role of diet and health and disease throughout the lifestyle, including weight control and fitness issues. Personal nutritional practices are analyzed and evaluated.

**Prerequisites:** KINE 2530 with a minimum grade of D- or KINE 2560 with a minimum grade of D- or KINE 2570 with a minimum grade of D- or EXSC 2530 with a minimum grade of D- or EXSC 2560 with a minimum grade of D- or EXSC 2570 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

**HEAL 4750 Obesity And Eating Disorders**

[3 credit hours]

Examines the issues of obesity and eating disorders. Consideration of effects on the individual as well as the public health implications. Explores causes, health and emotional impact, and treatment approaches.

**Prerequisites:** HEAL 2800 with a minimum grade of D-**Term Offered:** Summer, Fall**HEAL 4800 Public Health Research And Statistics**

[3 credit hours]

An examination of research and statistical techniques commonly employed in the health field. Topics will include research design, ethics of research, hypothesis testing and critiques of published research in health journals.

**Prerequisites:** HEAL 2750 (may be taken concurrently) with a minimum grade of B- and HEAL 3600 with a minimum grade of B-**Term Offered:** Spring**HEAL 4900 Health Education Seminar**

[1-3 credit hours]

Seminars are developed around selected topics of interest and allow in-depth consideration of the subject. They provide the student with advanced study in the area.

**Term Offered:** Spring, Summer, Fall**HEAL 4940 Senior Field Experience**

[6 credit hours]

Provides students the opportunity to develop the competencies necessary to assume responsibilities as an entry-level public health specialist through on-site work experiences in a public health agency, organization, or industry. Students will work under direct supervision of the agency's staff and a University supervisor.

**Prerequisites:** HEAL 2940 with a minimum grade of D- and HEAL 4100 with a minimum grade of D- and HEAL 4800 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**HEAL 4960 Political Determinants of Health**

[3 credit hours]

An examination of the political determinants of health, that is, the upstream political forces and policy decisions that are the causal sources of the social conditions that lead to health inequities. This course introduces the importance of power, politics, advocacy, and policy in public health. Students will learn models of health equity and the political determinants of health and apply these to contemporary case studies with particular attention to the health effects of racism.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**HEAL 4990 Independent Study In Health Education**

[1-3 credit hours]

Directed individual study. Specialty title, seminar sheet and permission of instructor are required.

**Term Offered:** Spring, Summer, Fall**HIM 2210 Medical and Pharmacological Terminology**

[3 credit hours]

Provide the student with a solid working knowledge of the medical language and basic pharmacology, especially the vocabulary and terminology used in medical coding, classification systems, and ancillary care.

**Term Offered:** Spring, Fall**HIM 2230 Healthcare Document Requirement**

[3 credit hours]

Inpatient and ambulatory health care data requirements will be identified and analyzed, including collection, analysis, and implementation. This course also includes aspects related to medical staff, personnel requirements, licensing, certifying, and accrediting agencies.

**Term Offered:** Spring, Fall**HIM 2260 Legal Issues in HIM**

[2 credit hours]

This course covers overview of the US legal system, identification of laws and regulations applicable to healthcare topics and related the health information management. Hardcopy and electronic health record legal issues examined in detail.

**Term Offered:** Spring, Fall**HIM 2300 Healthcare Resources, Payers**

[3 credit hours]

Introduction to roles of professionals in meeting standards of regulatory agencies and voluntary organizations in healthcare delivery systems. Data collection, quality, access, retention, technology and impact on healthcare financing.

**Term Offered:** Spring, Summer, Fall**HIM 2310 Acute Care Clinical Classification Systems And Services**

[4 credit hours]

Principles of coding disease conditions and procedures using the International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) and 10th Revision Procedure Classification System (ICD-10-PCS) are covered. Manual and computerized methods will be utilized to assign codes following Official Coding Guidelines required for reporting data.

**Prerequisites:** (KINE 1460 with a minimum grade of C or EXSC 1460 with a minimum grade of C and KINE 1560 with a minimum grade of C or EXSC 1560 with a minimum grade of C and KINE 2580 with a minimum grade of C or EXSC 2580 (may be taken concurrently) with a minimum grade of C) and (HIM 2210 with a minimum grade of C and HIM 2230 with a minimum grade of C)**Term Offered:** Fall**HIM 2320 Ambulatory Clinical Classifications Systems And Services**

[4 credit hours]

Principles of coding with the Healthcare Common Procedure Coding System (HCPCS) are discussed, and the assignments of codes using both manual and computerized methods are practiced.

**Prerequisites:** HIM 2210 with a minimum grade of C and (KINE 1460 with a minimum grade of C or EXSC 1460 with a minimum grade of C and KINE 1560 with a minimum grade of C or EXSC 1560 with a minimum grade of C)**Term Offered:** Spring**HIM 2350 Reimbursement Methodologies**

[2 credit hours]

MS-DRGs, APCs, RBRVS, and other reimbursement methods used by federal, state, and private insurance carriers are identified and reviewed. Compliance issues, including coding, billing, and chargemaster accuracy are identified and reviewed. Case mix and its implications for providing and improving healthcare quality also discussed.

**Prerequisites:** HIM 2310 with a minimum grade of C and HIM 2320 with a minimum grade of C

**HIM 3240 Health Information Administration Practices**

[4 credit hours]

Management theory and principles related to health information management in the acute and non-acute care environments are examined. Business techniques beneficial to health information administrators are identified and analyzed. Management theory and principles related to administration of healthcare service organizations are examined. Focus on strategic planning, accreditation/licensure, marketing, and institutional issues.

**Prerequisites:** BUAD 1020 with a minimum grade of D- and HIM 2300 with a minimum grade of C

**Term Offered:** Spring, Fall

**HIM 3940 Healthcare Content and Record Management**

[4 credit hours]

Generalized health information administrative duties in regards to staffing, managing, record release, storage and retrieval, coding, abstracting, utilization management, quality improvement, computer applications in health information practice.

**Prerequisites:** HIM 3240 with a minimum grade of C

**Term Offered:** Spring, Fall

**HIM 4210 Healthcare Statistics, Registries, Research**

[4 credit hours]

Theory of healthcare statistics will be reviewed and students will apply practical application of statistical methods used in healthcare to produce reports. Surveillance mechanisms, including database management used in registries to track various disease processes or injuries will be investigated and researched.

**Prerequisites:** MATH 2600 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**HIM 4230 Compliance and Ethical Issues**

[3 credit hours]

This course presents an overview of the compliance and ethical issues facing the health care industry. The importance of corporate compliance programs and standards, polices, and procedures healthcare organizations should have in place to assure compliance with government funded programs will be the focus of the course. Senior standing status required.

**Term Offered:** Spring, Fall

**HIM 4300 Performance Improvement and Quality Outcomes in Healthcare**

[3 credit hours]

This course encompasses the philosophy and purposes of quality improvement methods in health care organizations through application of tools for data collection, data analysis, and problem resolution. Continuous monitoring and performance improvement (PI) methods are investigated and applied to the management and evaluation of PI programs, the review of PI outcomes and implementation of action plans.

**Prerequisites:** INFS 3250 with a minimum grade of D- and CMPT 2460 with a minimum grade of D- and CMPT 1420 with a minimum grade of D-

**Term Offered:** Fall

**HIM 4500 Health Informatics & Information Management**

[4 credit hours]

This course introduces students to informatics as it applies to healthcare. Healthcare information systems are identified and the importance of the technology and its effect on healthcare delivery, communication, confidentiality, financing, and education are examined. An introduction to key medical areas in which computers are used will be discussed.

**HIM 4910 Integrative Capstone Experience**

[4 credit hours]

The course consists of a demonstration of proficiencies and competencies in Health Information Administration (HIA) core courses and an extensive examination of the cognitive levels required to pass the national Registered Health Information Administration (RHIA) exam and to become an effective healthcare information supervisor. Senior standing and instructor permission required.

**Term Offered:** Spring, Fall

**HIM 4940 Professional Practice Experience**

[4 credit hours]

Specialized administrative assignment within health information management in a facility, agency or organization. Students submit a major project for the site and members of the related HIM community of practice. Senior standing and instructor permission required.

**Prerequisites:** HIM 3240 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

## BS in HealthCare Administration

The University of Toledo offers a bachelor of science degree in healthcare administration. This degree requires 120 credit hours for graduation. The healthcare administration program provides students with knowledge and skills to act as healthcare administrators in a variety of settings, such as hospitals, long term care and outpatient facilities, physician offices, and public health agencies. This interdisciplinary program introduces students to managerial concepts and related skills. The healthcare core courses enhance students' knowledge in a variety of related subjects, including current health issues, legislation affecting healthcare, and management theories and decision making, all of which are important in healthcare administration. The degree program includes a minor in business. The program can be completed online.

## Healthcare Administration Internship

The healthcare administration internship is designed to provide students with an opportunity to apply educational achievements in a health care setting. Students will be exposed to health care administration operations through project-based work. Project opportunities will vary and reflect both the participant's learning goals and the needs of the health care organization.

To be considered for the internship, students need to:

- Declare healthcare administration as their major at least one semester before beginning the internship.
- Complete at least 12 credit hours in healthcare administration required courses with a minimum grade of "C" in each course.
- Have a current minimum 2.5 overall grade point average.

- Apply to the healthcare administration internship prior to their last semester before graduating.
- Complete the healthcare administration internship application three months prior to the internship semester.
- Provide resume to healthcare administration faculty.
- Interview with healthcare administration faculty and healthcare organization.
- Be able to provide their own transportation to the healthcare organization.
- Attend the healthcare organization’s orientation.
- Complete required immunizations from the healthcare organization.
- Obtain security badge from the healthcare organization.
- Have approval from healthcare administration faculty to complete internship.

Below is a sample plan of study. Consult your degree audit for your program requirements. Grades of "C" or better are required in all HCAR courses.

**NOTE: For students with an earned associate's degree in a health-related field, contact the program advisor for information on how that coursework can satisfy the requirements of this program.**

## BS in Healthcare Administration with Business Minor

First Term		Hours
BUAD 1020 or CMPT 1100	Micro-Computer Applications In Business or Microsoft Office Applications	3
ENGL 1110	College Composition I	3
HHS 1000	Health And Human Services/College Orientation	1
Arts/Humanities Core		3
MATH 1320	College Algebra	3
Elective		2
<b>Hours</b>		<b>15</b>
Second Term		Hours
ECON 1200	Principles Of Microeconomics	3
ENGL 2960	Professional and Business Writing	3
HEAL 1800	Medical Terminology	3
SOC 1010	Introduction To Sociology	3
Diversity of US		3
<b>Hours</b>		<b>15</b>
Third Term		Hours
BUAD 2040 or ACTG 1040	Financial Accounting Information or Principles Of Financial Accounting	3
ECON 1150	Principles Of Macroeconomics	3
HEAL 2700	Introduction to Public Health	3
Non-US Diversity		3
Program Elective		3
<b>Hours</b>		<b>15</b>

Fourth Term		
BUAD 2050 or ACTG 1050	Accounting For Business Decision-Making or Principles Of Management Accounting	3
EXSC 1560	Fundamentals of Anatomy and Physiology	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
HCAR 3000	Introduction to Health Care Administration	3
Core Elective		3
Program Elective		3
<b>Hours</b>		<b>16</b>

Fifth Term		
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
HCAR 4560	Services in Healthcare	3
MATH 2600	Introduction To Statistics	3
Natural Sciences Elective		3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>

Sixth Term		
BUAD 3010	Principles Of Marketing	3
HCAR 4360	Quality Improvement In Health Care	3
HCAR 4570	Resources in Healthcare	4
HEAL 3800	Death And Dying	3
PHIL 3370	Medical Ethics	3
<b>Hours</b>		<b>16</b>

Seventh Term		
HCAR 4530	Problem Solving In Health Care Environment	4
HCAR 4550	Health Care Finance	3
HEAL 4560	Health Problems Of Aging	3
MGMT 3630	Conflict Management: Mediation & Negotiations	3
<b>Hours</b>		<b>13</b>

Eighth Term		
HCAR 4540	Field Experience In Healthcare Management	3
HCAR 4580	Leadership and Management in Healthcare	3
HURM 3220	Human Resource Management	3
Program Elective		3
Elective		3
<b>Hours</b>		<b>15</b>

**Total Hours 120**

- PLO 1. Knowledge of the Healthcare Environment: Describe the healthcare system environment.
- PLO 2. Critical Thinking and Problem-Solving Skills: Assess, analyze, and solve issues in healthcare.
- PLO 3. Communication: Develop professional written and oral communication skills with individuals and groups.



- PLO 4. Ethics and Professionalism: Displays personal and organizational conduct aligned with the ethical and professional standards expected of health care administrators that include a responsibility to the healthcare community.
- PLO 5. Students are able to explain key concepts in healthcare administration.

## BS in Health Information Administration

The University of Toledo offers a bachelor of science degree in health information administration (HIA). This degree requires 120 credit hours for graduation and can be completed 100% online or in a combination of online HIA classes, on-campus electives, and foundation classes. UToledo's HIA program offers practical, hands-on experience. It encompasses a broad range of disciplines, including medicine, health, business, informatics, and information management. Graduates serve in various healthcare managerial and administrative roles, including planning, organizing, controlling, and evaluating health information systems; applying legal principles, policies, regulations, and standards and analyzing their impact on risk management; and supervising personnel in various healthcare settings. Health information managers are responsible for health records and must assure adequate documentation for accurate classifying and indexing of diagnoses, treatments and procedures for the purpose of planning and reimbursement. Health information administrators are responsible for planning, engineering, workflow applications, research, reporting, and policy administration.

The UToledo HIA program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM) and has been recognized as one of the country's best. The HIA program is the first undergraduate program at the University to have all core courses certified by Quality Matters (QM). QM certification demonstrates that it produces learning outcomes that can be measured.

Health information administration jobs are rising faster than the national average. UToledo graduates are highly marketable as the healthcare industry relies on health information administrators for their expertise in legally and accurately collecting, analyzing, documenting, storing patient data, complying with applicable healthcare rules and regulations, securing/protecting patient data, privacy, and release of information.

The HIA program prepares students for the national Registered Health Information Administrator (RHIA) credentialing examination, one of the top 20 credentials in the U.S. The American Health Information Management Association (AHIMA) grants successful examination candidates with Registered Health Information Administrators (RHIA) credentials. Health information administrators work in various settings, from acute-care facilities (hospitals), long-term care facilities, physician group practices, and healthcare insurance companies to healthcare consulting companies, information technology corporations, and federal, state, and local government agencies. HIA program graduates are employed in the following positions: cancer registrar, trauma registrar, or revenue cycle manager; case management director; compliance; health data analyst; data integrity manager; and director of health information or information governance.

HIM positions aligned with STEM occupation categories are Medical Coder, Clinical System Analyst, Clinical Data Developer, Clinical Data Specialist, Health Data Analyst, and Clinical Data Manager.

The United States is expected to add more than 50,000 health information administration jobs in the next decade (U.S. Department of Labor (<https://www.bls.gov/ooh/management/medical-and-health-services-managers.htm>)).

Professional practice experience (PPE) is an integral part of the health information administration curriculum. The PPE is project-oriented, with students acting as project managers, creating a proposal letter and project forms, deliverable(s), presentation, survey, and follow-up analysis. Sites and projects vary by location.

Although this degree program is available online, students are required to complete the PPE onsite at an approved healthcare organization in their local area. Students are responsible for completing 220 onsite hours for the PPE. Students are required to meet all site requirements, including immunizations and background checks. Students must provide their own transportation to the site.

## BS in Health Information Administration

Below is a sample plan of study. Consult your degree audit for your program requirements. Grades of "C" or better required in all EXSC and HIM courses.

<b>First Term</b>		<b>Hours</b>
BUAD 1020	Micro-Computer Applications In Business	3
ENGL 1110	College Composition I	3
EXSC 1560	Fundamentals of Anatomy and Physiology	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
HHS 1000	Health And Human Services/College Orientation	1
Arts/Humanities Core		3
<b>Hours</b>		<b>14</b>
<b>Second Term</b>		
BMGT 1540 or BUAD 2030	Organizational Behavior or Executive Communication Essentials	3
BMGT 2020	Human Resource Development	3
BUAD 2020	Information Technology Management	3
CMPT 1420	Microsoft Access Database Applications	2
MATH 2600	Introduction To Statistics	3
<b>Hours</b>		<b>14</b>
<b>Third Term</b>		
EXSC 2580	Human Pathophysiology For Health Care	3
ENGL 2950 or ENGL 2960	Technical Writing or Professional and Business Writing	3
HIM 2230	Healthcare Document Requirement (FL)	3
HIM 2260	Legal Issues in HIM (FL)	2
HIM 2300	Healthcare Resources, Payers (FL)	3
<b>Hours</b>		<b>14</b>
<b>Fourth Term</b>		
ACTG 2310	Financial Management for Health Care	3

HIM 2210	Medical and Pharmacological Terminology (SP)	3
HIM 3240	Health Information Administration Practices (SP)	4
INFS 3250	Business Data Analysis & Reporting	3
Social Sciences Core (Diversity of US)		3
<b>Hours</b>		<b>16</b>
<b>Fifth Term</b>		
HIM 2310	Acute Care Clinical Classification Systems And Services (FL)	4
HIM 2350	Reimbursement Methodologies (FL)	2
HIM 3940	Healthcare Content and Record Management (FL)	4
Core Elective (Non-US Diversity)		3
Natural Sciences Core		3
<b>Hours</b>		<b>16</b>
<b>Sixth Term</b>		
COMM 2840	Interpersonal Communication	3
HIM 2320	Ambulatory Clinical Classifications Systems And Services (SP)	4
Upper Division Supporting Elective		3
Social Sciences Core		3
Core Elective		3
<b>Hours</b>		<b>16</b>
<b>Seventh Term</b>		
HIM 4210	Healthcare Statistics, Registries, Research (FL)	4
HIM 4230	Compliance and Ethical Issues (FL)	3
HIM 4300	Performance Improvement and Quality Outcomes in Healthcare (FL)	3
Upper Division Supporting Elective		3
Core Elective		3
<b>Hours</b>		<b>16</b>
<b>Eighth Term</b>		
HIM 4500	Health Informatics & Information Management	4
HIM 4910	Integrative Capstone Experience (SP)	4
HIM 4940	Professional Practice Experience	4
Elective: Foreign Language Recommended		2
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>120</b>

Courses noted with FL or SP are only offered in those semesters. All HIM courses are offered online only.

- PLO 1. Students are able to examine significant debates and questions
- PLO 2. Students are able to demonstrate an understanding of discipline specific knowledge
- PLO 3. Students are able to apply knowledge in the field to solve unique problems

- PLO 4. Students engage in critical thinking, actively conceptualizing, applying, analyzing, synthesizing, and/or evaluating information
- PLO 5. Students demonstrate proficiency in information literacy and the ability to use information resources
- PLO 6. Students will demonstrate the ability to engage in ethical reasoning
- PLO 7. Students will demonstrate the ability to communicate both orally and in writing
- PLO 8. Students will demonstrate interpersonal skills that support effective communication, i.e., emotional intelligence
- PLO 9. Students will evaluate their role and profession in the community and globally
- PLO 10. Students will demonstrate knowledge of their ethical responsibility when conducting research in terms of the rights of human subjects and proper scientific conduct
- PLO 11. Students will demonstrate the integration of knowledge by creating a unique group presentation or project
- PLO 12. Students will demonstrate the ability to work collaboratively with others
- PLO 13. Students will apply their knowledge and skill to effectively meet the expectations of their internship or co-op supervisor

## BA in Health Sciences

The University of Toledo offers a bachelor of arts degree in health sciences. This degree requires 120 credit hours for graduation. Health sciences provides students with an introduction to a variety of health professions and broad prerequisite knowledge. Through its mix of sciences and interdisciplinary core courses, the degree offers students rigorous and diverse content that will prepare them for success in health and healthcare related careers or professional programs upon graduation.

The Pre-Occupational Therapy concentration prepares students for success in graduate occupational therapy programs. The curriculum provides the most commonly required prerequisite courses as well as the contemporary knowledge, experiences, and perspectives that will prepare students to provide high quality care to future patients and communities.

The Social Determinants of Health concentration focuses on the nonmedical factors that impact health and includes a two-semester capstone experience. Students will be prepared for a variety of health-related careers, including community and population health, nonprofit and for-profit health leadership, and research and policy development.

- Health Sciences - Pre-Occupational Therapy Concentration, BA (p. 294)
- Health Sciences - Social Determinants of Health Concentration, BA (p. 295)

### Health Sciences - Pre-Occupational Therapy Concentration, BA Requirements

Code	Title	Hours
<b>Skills Area (10 hours)</b>		<b>10</b>
ENGL 1110	College Composition I	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	



MATH 2600	Introduction To Statistics <sup>Requires MATH 1200 minimum C- or ACT/SAT or Placement Test</sup>	
HHS 1010	Introduction to Health Sciences I with Orientation	
Humanities/Fine Arts (6 hours from UToledo Core Curriculum)		3
COMM 1010	Comm Principles And Practices	3
or COMM 2840 Interpersonal Communication		
Social Sciences (6 hours) (satisfies social sciences core curriculum requirement)		6
PSY 1010	Principles Of Psychology	
SOC 1010	Introduction To Sociology	
Natural Sciences (7 hours) (satisfies natural sciences core curriculum requirement)		7
BIOL 1120	Survey Of Biology	
EXSC 2560	Anatomy and Physiology I	
EXSC 2460	Human Anatomy And Physiology I Lab	
Core Electives (9 hours) (Math, Humanities, Social Sciences, and/or Natural Sciences from the UToledo Core Curriculum)		9
ART 1040	Foundations of Art Studio Technology <sup>Recommended</sup>	
COCA 2000	Mindful Creativity <sup>Recommended</sup>	
PHYS 1300	Physics In Everyday Life <sup>Recommended</sup>	
Multicultural Studies (6 hours from UToledo core curriculum)		6
DST 2020	Introduction to Disability Studies	
ANTH 2800	Cultural Anthropology	

Code	Title	Hours
<b>Required Major Courses (32 hours)</b>		
HHS 1020	Introduction to Health Sciences II <sup>C or better</sup>	2
HHS 3100	Introduction to Social Determinants of Health <sup>C or better</sup>	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science <sup>C or better</sup>	3
HHS 4800	Health Sciences Capstone I <sup>C or better</sup>	3
HHS 4810	Health Sciences Capstone II <sup>C or better</sup>	3
COUN 3000	Cultural Competence in Health and Human Services Professions <sup>C or better</sup>	3
LGL 4230	Health Care And The Law <sup>C or better</sup>	3
HEAL 4800	Public Health Research And Statistics <sup>C or better</sup>	3
HEAL 3600	Prevention And Control Of Disease <sup>C or better</sup>	3
HIM 2300	Healthcare Resources, Payers <sup>C or better</sup>	3
HEAL 4960	Political Determinants of Health <sup>C or better</sup>	3
<b>Total Hours</b>		<b>32</b>

Code	Title	Hours
<b>Pre-Occupational Therapy Concentration Requirements (25 hours)</b>		
HEAL 1800	Medical Terminology	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
OCCT 2550	PURPOSEFUL LIVING ROLE OF OCCUPATIONAL THERAPY	3
PSY 2200	Abnormal Psychology	3
PSY 2510	Lifespan Developmental Psychology	3

HHS 4100	Foundations of Healthcare Delivery	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
Choose one:		
HEAL 2400	General Safety	3
or HEAL 2500 Personal Health		
or HEAL 2600 Mental Health		
General Electives (19 hours)		
<b>Total Hours</b>		<b>25</b>

## Health Sciences - Social Determinants of Health Concentration, BA Requirements

Code	Title	Hours
<b>Skills Area (10 hours)</b>		
ENGL 1110	College Composition I	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	
MATH 2600	Introduction To Statistics <sup>Requires MATH 1200 minimum C- or ACT/SAT or Placement Test</sup>	
HHS 1010	Introduction to Health Sciences I with Orientation	
Arts/Humanities Core (6 hours from UToledo Core Curriculum)		6
Social Sciences Core (6 hours) (satisfies social sciences core curriculum requirement)		6
PSY 1010	Principles Of Psychology	
SOC 1010	Introduction To Sociology	
Natural Sciences Core (7 hours) (satisfies natural sciences core curriculum requirement)		7
EXSC 1460	Fundamentals of Anatomy and Physiology Lab <sup>C or better</sup>	
EXSC 1560	Fundamentals of Anatomy and Physiology <sup>C or better</sup>	
Natural Sciences Course		3
Core Electives (9 hours) (Math, Humanities, Social Sciences, and/or Natural Sciences from the UToledo Core Curriculum)		9
Multicultural Studies (6 hours from UToledo core curriculum)		6

Code	Title	Hours
<b>Required Major Courses (32 hours) <sup>C or better</sup></b>		
HHS 1020	Introduction to Health Sciences II <sup>C or better</sup>	2
HHS 3100	Introduction to Social Determinants of Health <sup>C or better</sup>	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science <sup>C or better</sup>	3
HHS 4800	Health Sciences Capstone I <sup>C or better</sup>	3
HHS 4810	Health Sciences Capstone II <sup>C or better</sup>	3
COUN 3000	Cultural Competence in Health and Human Services Professions <sup>C or better</sup>	3
LGL 4230	Health Care And The Law <sup>C or better</sup>	3
HEAL 4800	Public Health Research And Statistics <sup>C or better</sup>	3
HEAL 3600	Prevention And Control Of Disease <sup>C or better</sup>	3
HIM 2300	Healthcare Resources, Payers <sup>C or better</sup>	3



HEAL 4960	Political Determinants of Health <sup>C or better</sup>	3
<b>Total Hours</b>		<b>32</b>

**Code Title Hours**  
**Concentration in Social Determinants of Health: Supporting Electives 18 (18 hours) (tailor this to suit area of professional interest)**

ANTH 3330	Food, Health, Society	
ANTH 4760	Medical Anthropology	
COMM 2500	Social Media I: Introduction to Social Media	
COMM 3500	Social Media II: Social Media Communication Strategies	
COMM 2600	Public Presentations	
COMM 2820	Group Communication	
COMM 2830	Organizational Communication	
COMM 3760	Health Communication	
COMM 4260	Communication in Non-Profit Organizations	
COMM 4830	Gender, Culture & Communication	
COUN 3140	Substance Abuse Prevention And Community Programming	
COUN 4080	Essentials Of Helping Relationships	
COUN 4240	Substance Abuse Treatment Techniques	
CRIM 2250	Juvenile Justice	
CRIM 3250	Women and Crime	
CRIM 3300	Sex Crimes	
CRIM 4000	Narcotics Policy and Enforcement	
DST 2020	Introduction to Disability Studies	
EEES 1050	Geological Hazards And The Environment	
EEES 1170	Microbes And Society	
EDP 1500		
EDP 4210		
EDP 4220	Adolescent Behavior And Development	
EDP 4230		
EFSB 4690	Strategic Management of Innovation	
EXSC 2580	Human Pathophysiology For Health Care	
GEPL 3610	Conservation And Resources	
GEPL 4110	Geographic Information Systems	
HCAR 4360	Quality Improvement In Health Care	
HHS 4100	Foundations of Healthcare Delivery	
HEAL 1800	Medical Terminology	
HEAL 2000	Foundations Of Health Education	
HEAL 2400	General Safety	
HEAL 2500	Personal Health	
HEAL 2600	Mental Health	
HEAL 2100	Living Well	
HEAL 2700	Introduction to Public Health	
HEAL 2800	Principles Of Nutrition	
HEAL 3500	Environmental Health	
HHS 2500	Data Science I	
HHS 4500	Data Science II	
HEAL 4900	Health Education Seminar	

HON 3010	Community Engagement	
HIM 4500	Health Informatics & Information Management	
HURM 4640	Benefits, Health & Wellness	
LST 2010	Law And Social Thought	
MGMT 3630	Conflict Management: Mediation & Negotiations	
MGMT 3700	Best Practices in Diversity Leadership	
MGMT 3770	Ethics In Leadership And Management	
MGMT 4210		
MGMT 4330	Leading Organizational Change and Development	
MGMT 4780	Leading and Managing People	
OCCT 2550	PURPOSEFUL LIVING ROLE OF OCCUPATIONAL THERAPY	
PSC 3410	Principles of Public Policy	
PSC 3800	Sexual Politics	
PSC 4220	Advocacy Groups in US Politics	
PJS 1000	Introduction to Peace and Justice Studies	
PJS 2000	Nonviolence and Conflict Transformation Theory and Practice	
PSY 2200	Abnormal Psychology	
PSY 2510	Lifespan Developmental Psychology	
PSY 2700	Social Psychology	
PSY 3300	Organizational Development Theory and Principles	
PSY 3310	OD Practices	
PSY 3730	Stereotyping, Prejudice, & Discrimination	
PSY 3740	Health Psychology	
RCRT 3310	Inclusion and Recreational Therapy Services	
RCRT 4720	Introduction To Therapeutic Recreation	
SOC 2150	The Family and Society	
SOC 2500	Women's Roles: A Global Perspective	
SOC 2640	Race, Class, And Gender	
SOC 2900	African American Culture	
SOC 3640	Social Inequality	
SOC 4100	Community Organizing and Development	
SOC 4160	Health And Gender	
SOC 4180	Medical Sociology	
SOC 4190		
SOC 4340	Population And Society	
SOCW 3080	Women In Poverty	
SOCW 3520	Human Animal Interaction, Health and Wellness	
TSOC 2000	Diversity In Contemporary Society	
WGST 2880	Contemporary U.S. Queer Cultures	
WGST 3200	Issues In Lesbian, Transgender, Bisexual And Gay Communities	
<b>General Electives (26 hours)</b>		<b>26</b>

- Health Sciences - Pre-Occupational Therapy Concentration, BA (p. 296)
- Health Sciences - Social Determinants of Health Concentration, BA (p. 297) (p. )



## Health Sciences - Pre-Occupational Therapy Concentration, BA Plan of Study

First Term		Hours
ENGL 1110	College Composition I	3
MATH 2600	Introduction To Statistics	3
HEAL 1800	Medical Terminology	3
PSY 1010	Principles Of Psychology	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>

Second Term		Hours
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
BIOL 1120	Survey Of Biology	3
SOC 1010	Introduction To Sociology	3
HHS 1020	Introduction to Health Sciences II	2
Elective		3
<b>Hours</b>		<b>14</b>

Third Term		Hours
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
Arts/Humanities Core (ART 1040 recommended)		3
HHS 3100	Introduction to Social Determinants of Health	3
OCCT 2550	PURPOSEFUL LIVING ROLE OF OCCUPATIONAL THERAPY	3
Elective		3
<b>Hours</b>		<b>16</b>

Fourth Term		Hours
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
Arts/Humanities Core (COCA 2000 recommended)		3
DST 2020	Introduction to Disability Studies	3
COUN 3000	Cultural Competence in Health and Human Services Professions	3
Select one of the following:		3
HEAL 2400	General Safety	
HEAL 2500	Personal Health	
HEAL 2600	Mental Health	
<b>Hours</b>		<b>16</b>

Fifth Term		Hours
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
Natural Science Core (PHYS 1300 recommended)		3
ANTH 2800	Cultural Anthropology	3
HEAL 3600	Prevention And Control Of Disease	3
PSY 2200	Abnormal Psychology	3
<b>Hours</b>		<b>15</b>

Sixth Term		Hours
HIM 2300	Healthcare Resources, Payers	3
HEAL 4800	Public Health Research And Statistics	3
HHS 4100	Foundations of Healthcare Delivery	3
PSY 2510	Lifespan Developmental Psychology	3
Elective		3

**Hours 15**

Seventh Term		Hours
HHS 4800	Health Sciences Capstone I	3
LGL 4230	Health Care And The Law	3
COMM 1010	Comm Principles And Practices or COMM 2840 or Interpersonal Communication	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
Elective		3

**Hours 15**

Eighth Term		Hours
HHS 4810	Health Sciences Capstone II	3
HEAL 4960	Political Determinants of Health	3
Elective		3
Elective		4
<b>Hours</b>		<b>13</b>

**Total Hours 120**

## Health Sciences - Social Determinants of Health Concentration, BA Plan of Study

First Term		Hours
HHS 1010	Introduction to Health Sciences I with Orientation	1
ENGL 1110	College Composition I	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
EXSC 1560	Fundamentals of Anatomy and Physiology	3
Arts/Humanities Core		3
Diversity of US OR Non-Diversity of US		3
Elective		2
<b>Hours</b>		<b>16</b>

Second Term		Hours
HHS 1020	Introduction to Health Sciences II	2
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
SOC 1010	Introduction To Sociology	3
Supporting Elective		3
Elective		3
<b>Hours</b>		<b>14</b>

Third Term		Hours
HHS 3100	Introduction to Social Determinants of Health	3
MATH 2600	Introduction To Statistics	3
Natural Sciences Core		3

Elective		3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
HIM 2300	Healthcare Resources, Payers	3
Core Elective		3
Core Elective		3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
HEAL 3600	Prevention And Control Of Disease	3
PSY 1010	Principles Of Psychology	3
	Diversity of US OR Non-Diversity of US	3
Supportive Elective		3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
HEAL 4800	Public Health Research And Statistics	3
Core Elective		3
Supporting Elective		3
Elective		3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
HHS 4800	Health Sciences Capstone I	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
Supporting Elective		3
Supporting Elective		3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Eighth Term</b>		
HHS 4810	Health Sciences Capstone II	3
LGL 4230	Health Care And The Law	3
HEAL 4960	Political Determinants of Health	3
Supporting Elective		3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>120</b>

- Health Sciences - Pre-Occupational Therapy Concentration, BA (p. 298)
- Health Sciences - Social Determinants of Health Concentration, BA (p. 298)

### Health Sciences - Pre-Occupational Therapy Concentration, BA Learning Outcomes

- Develop the appropriate written and oral skills necessary for graduate study or a professional career, including the ability to present oneself in a professional manner
- Demonstrate knowledge of human cultures and the physical and natural world as it relates to individual and population health
- Describe the role of cultural humility and cultural responsiveness in health professions
- Demonstrate the ability to work collaboratively with others
- Identify specific behaviors that promote or compromise health
- Explain how to locate, appraise and utilize evidence to positively impact health
- Demonstrate knowledge of research and statistical techniques commonly employed in the health fields
- Describe the influence of socio-identities (e.g., race, ethnicity, religion, gender, socioeconomic status, sexual orientation, ability) on individuals' functioning, concerns, and the helping process in the context of health and human service professions
- Demonstrate knowledge of the social welfare institution, its history, relation to social values, social welfare laws and programs, and the systems characteristic of service delivery
- Identify health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations
- Articulate the etiology, pathogenesis, and prevention and control of acute and chronic diseases
- Describe the roles of professionals in meeting standards of regulatory agencies and voluntary organizations in health systems
- Describe multiple aspects of the social environment and identify how social determinants of health contribute to healthcare disparities
- Develop foundational knowledge for health professionals
- Identify careers in occupational therapy, how to pursue them, how to meet regulatory, and demonstrate foundational knowledge for study in pre-occupational therapy concentration.

### Health Sciences - Social Determinants of Health Concentration, BA Learning Outcomes

- Develop the appropriate written and oral skills necessary for graduate study or a professional career, including the ability to present oneself in a professional manner
- Demonstrate knowledge of human cultures and the physical and natural world as it relates to individual and population health
- Describe the role of cultural humility and cultural responsiveness in health professions
- Demonstrate the ability to work collaboratively with others
- Identify specific behaviors that promote or compromise health
- Explain how to locate, appraise and utilize evidence to positively impact health
- Demonstrate knowledge of research and statistical techniques commonly employed in the health fields
- Describe the influence of socio-identities (e.g., race, ethnicity, religion, gender, socioeconomic status, sexual orientation, ability)



on individuals' functioning, concerns, and the helping process in the context of health and human service professions

- Demonstrate knowledge of the social welfare institution, its history, relation to social values, social welfare laws and programs, and the systems characteristic of service delivery
- Identify health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations
- Articulate the etiology, pathogenesis, and prevention and control of acute and chronic diseases
- Describe the roles of professionals in meeting standards of regulatory agencies and voluntary organizations in health systems
- Describe multiple aspects of the social environment and identify how social determinants of health contribute to healthcare disparities
- Develop foundational knowledge for health professionals

## BS in Health Sciences

The University of Toledo offers a bachelor of science degree in health sciences. This degree requires 120 credit hours for graduation. Health sciences provides students with an introduction to a variety of health professions and broad prerequisite knowledge. Through its mix of sciences and interdisciplinary core courses, the degree offers students rigorous and diverse content that will prepare them for success in health and healthcare related careers or professional programs upon graduation. The curriculum offers several concentrations that include the most commonly required prerequisite courses as well as contemporary knowledge, experiences, and perspectives that will prepare students to provide high quality care to future patients and communities.

The Human Performance and Fitness Promotion concentration is specifically designed to give students an in-depth understanding of how the human body responds and adapts to exercise and how exercise can be used to promote health and wellness. As our healthcare systems evolve and extend their focus beyond treating disease and illness to treating people and communities and preventing disease and disability, the inclusion of professionals trained in the science of exercise will be important. Graduates will be eligible to sit for certification programs offered by such organizations as the American College of Sports Medicine or the National Strength and Conditioning Association.

The Pre-Athletic Training and Pre-Physical Therapy concentration prepares students for admission to graduate entry-level programs in athletic training or physical therapy.

The Pre-Medical Professions concentration prepares students for admission into medical school and other health professions including dentistry, optometry, transplantation and donation sciences, and veterinary science.

The Pre-Physician Assistant concentration is designed for students pursuing admission to physician assistant graduate programs.

- Health Sciences - Human Performance & Fitness Promotion Concentration, BS (p. 299)
- Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS (p. 300)

- Health Sciences - Pre-Medical Professions Concentration, BS (p. 300)
- Health Sciences - Pre-Physician Assistant Concentration, BS (p. 301)

### Health Sciences - Human Performance & Fitness Promotion Concentration, BS Requirements

Code	Title	Hours
<b>Skills Area (12-13 hours)</b>		<b>12-13</b>
ENGL 1110	College Composition I	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	
MATH 1340	College Algebra And Trigonometry	
	or MATH 133: College Algebra and Trigonometry & MATH 133	
HHS 1010	Introduction to Health Sciences I with Orientation	

Code	Title	Hours
<b>Social Sciences (6 hours) (satisfies social sciences core curriculum requirement)</b>		<b>6</b>
SOC 1010	Introduction To Sociology	
PSY 1010	Principles Of Psychology	

Code	Title	Hours
<b>Humanities/Fine Arts (6 hours from UToledo Core Curriculum)</b>		<b>6</b>

Code	Title	Hours
<b>Natural Sciences (19 hours) (satisfies natural sciences core curriculum requirement)</b>		
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
EXSC 2460	Human Anatomy And Physiology I Lab	1
EXSC 2560	Anatomy and Physiology I	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
<b>Total Hours</b>		<b>19</b>

Code	Title	Hours
<b>Multicultural Studies (3 hours from UToledo core curriculum)</b>		<b>3</b>

Code	Title	Hours
<b>Required Major Courses (33 hours) <sup>C or better</sup></b>		
HHS 1020	Introduction to Health Sciences II <sup>C or better</sup>	2
HHS 3100	Introduction to Social Determinants of Health <sup>C or better</sup>	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science <sup>C or better</sup>	3
HHS 4100	Foundations of Healthcare Delivery <sup>C or better</sup>	3

COUN 3000	Cultural Competence in Health and Human Services Professions <sup>C or better</sup>	3
EXSC 2470	Human Anatomy And Physiology II Lab <sup>C or better</sup>	1
EXSC 2570	Human Anatomy and Physiol II <sup>C or better</sup>	3
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology <sup>C or better</sup>	3
LGL 4230	Health Care And The Law <sup>C or better</sup>	3
PHIL 3370	Medical Ethics <sup>C or better</sup>	3
MATH 2600	Introduction To Statistics <sup>C or better</sup>	3

**Total Hours 33**

**Code Title Hours**

**Human Performance Fitness Promotion (29 hours) Concentration**

EXSC 3520	Applied Exercise Physiology <sup>C or better</sup>	3
EXSC 3530	Applied Exercise Physiology Laboratory <sup>C or better</sup>	1
EXSC 3680	Sport and Exercise Pharmacology <sup>C or better</sup>	3
EXSC 3830	Principles of Strength Conditioning <sup>C or better</sup>	3
EXSC 3850	Cardiac Dysrhythmia Interpretation <sup>C or better</sup>	3
EXSC 3860	Cardiac Dysrhythmia Lab	1
EXSC 4830	Principles of Endurance Conditioning <sup>C or better</sup>	3
EXSC 4850	Clinical Exercise Testing <sup>C or better</sup>	3
EXSC 4860	Clinical Exercise Testing Lab <sup>C or better</sup>	1
EXSC 4140	Fitness Internship I <sup>C or better</sup>	4
EXSC 4840	Fitness Internship II <sup>C or better</sup>	4

**Total Hours 29**

**Code Title Hours**

**Supplemental Major Course select one (3-4 hours)**

HEAL 4700	Nutritional Science	3
or EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	
or EXSC 4540 & EXSC 4550	Applied Biomechanics and Applied Biomechanics Lab	

**Code Title Hours**

**General Electives to meet 120 credit hours and fulfill upper-level course requirements**

**Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS Requirements**

**Code Title Hours**

**Skills Area (12-13 hours)**

ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1340 or MATH 1320 & MATH 1330	College Algebra And Trigonometry and Trigonometry	5
HHS 1010	Introduction to Health Sciences I with Orientation	1

**Code Title Hours**

**Social Sciences (6 hours) (satisfies social sciences core curriculum requirement)**

SOC 1010	Introduction To Sociology	3
PSY 1010	Principles Of Psychology	3

**Code Title Hours**

**Humanities/Fine Arts (6 hours from UToledo Core Curriculum)**

**Code Title Hours**

**Natural Sciences (19 hours) (satisfies natural sciences core curriculum requirement)**

BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
EXSC 2460	Human Anatomy And Physiology I Lab <sup>C or better</sup>	1
EXSC 2560	Anatomy and Physiology I <sup>C or better</sup>	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1

**Code Title Hours**

**Multicultural Studies (3 hours from UToledo core curriculum)**

**Code Title Hours**

**Required Major Courses (33 hours) <sup>C or better</sup>**

HHS 1020	Introduction to Health Sciences II <sup>C or better</sup>	2
HHS 3100	Introduction to Social Determinants of Health <sup>C or better</sup>	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science <sup>C or better</sup>	3
HHS 4100	Foundations of Healthcare Delivery <sup>C or better</sup>	3
COUN 3000	Cultural Competence in Health and Human Services Professions <sup>C or better</sup>	3
EXSC 2470	Human Anatomy And Physiology II Lab <sup>C or better</sup>	1
EXSC 2570	Human Anatomy and Physiol II <sup>C or better</sup>	3
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology <sup>C or better</sup>	3
LGL 4230	Health Care And The Law <sup>C or better</sup>	3
PHIL 3370	Medical Ethics <sup>C or better</sup>	3
MATH 2600	Introduction To Statistics <sup>C or better</sup>	3

**Code Title Hours**

**Pre-Athletic and Pre-Physical Therapy (26 hours) Concentration**

BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1



EXSC 3520	Applied Exercise Physiology <sup>C or better</sup>	3
EXSC 3530	Applied Exercise Physiology Laboratory <sup>C or better</sup>	1
EXSC 4540	Applied Biomechanics	3
EXSC 4550	Applied Biomechanics Lab	1
PHYS 2080	General Physics II	5
Select one from the following:		3
PSY 2200	Abnormal Psychology	
PSY 2510	Lifespan Developmental Psychology	
PSY 2700	Social Psychology	
General Electives		12
<b>Total Hours</b>		<b>38</b>

Code	Title	Hours
<b>Supplemental Major Course (select one) 3 hours</b>		
HEAL 4700	Nutritional Science	3
or EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	

Code	Title	Hours
<b>General Electives to meet 120 credit hours and fulfill upper-level course requirements</b>		

## Health Sciences - Pre-Medical Professions Concentration, BS Requirements

Code	Title	Hours
<b>Skills Area (12-13 hours)</b>		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1340	College Algebra And Trigonometry	5
or MATH 1320 & MATH 1330	College Algebra and Trigonometry	
HHS 1010	Introduction to Health Sciences I with Orientation	1

Code	Title	Hours
<b>Social Sciences (6 hours) (satisfies social sciences core curriculum requirement)</b>		
SOC 1010	Introduction To Sociology	3
PSY 1010	Principles Of Psychology	3

Code	Title	Hours
<b>Humanities/Fine Arts (6 hours from UToledo Core Curriculum)</b>		

Code	Title	Hours
<b>Natural Sciences (19 hours) (satisfies natural sciences core curriculum requirement)</b>		
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1

EXSC 2460	Human Anatomy And Physiology I Lab	1
EXSC 2560	Anatomy and Physiology I	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1

Code	Title	Hours
<b>Multicultural Studies (3 hours from UToledo core curriculum)</b>		

Code	Title	Hours
<b>Required Major Courses (33 hours)</b>		
HHS 1020	Introduction to Health Sciences II <sup>C or better</sup>	2
HHS 3100	Introduction to Social Determinants of Health <sup>C or better</sup>	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science <sup>C or better</sup>	3
HHS 4100	Foundations of Healthcare Delivery <sup>C or better</sup>	3
COUN 3000	Cultural Competence in Health and Human Services Professions <sup>C or better</sup>	3
EXSC 2470	Human Anatomy And Physiology II Lab <sup>C or better</sup>	1
EXSC 2570	Human Anatomy and Physiol II <sup>C or better</sup>	3
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology <sup>C or better</sup>	3
LGL 4230	Health Care And The Law <sup>C or better</sup>	3
PHIL 3370	Medical Ethics <sup>C or better</sup>	3
MATH 2600	Introduction To Statistics <sup>C or better</sup>	3
<b>Total Hours</b>		<b>33</b>

Code	Title	Hours
<b>Pre-Medical (26 hours) Concentration</b>		
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
CHEM 2410	Organic Chemistry I	3
CHEM 2420	Organic Chemistry II	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
PHYS 2080	General Physics II	5
CHEM 3510	Biochemistry I	3
<b>Total Hours</b>		<b>26</b>

Code	Title	Hours
<b>Supplemental Major Course (select one) 3-4 hours</b>		
HEAL 4700	Nutritional Science	3
or EXSC 3520 & EXSC 3530	Applied Exercise Physiology and Applied Exercise Physiology Laboratory	
or EXSC 4540 & EXSC 4550	Applied Biomechanics and Applied Biomechanics Lab	

or EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	
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Code	Title	Hours
<b>General Electives to meet 120 credit hours and fulfill upper-level course requirements</b>		

### Health Sciences - Pre-Physician Assistant Concentration, BS Requirements

Code	Title	Hours
<b>Skills Area (12-13 hours)</b>		

ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1340	College Algebra And Trigonometry	5
or MATH 1320 & MATH 1330	College Algebra and Trigonometry	
HHS 1010	Introduction to Health Sciences I with Orientation	1

Code	Title	Hours
<b>Social Sciences (6 hours) (satisfies social sciences core curriculum requirement)</b>		

SOC 1010	Introduction To Sociology	3
PSY 1010	Principles Of Psychology	3

Code	Title	Hours
<b>Humanities/Fine Arts (6 hours from UToledo Core Curriculum)</b>		

Code	Title	Hours
<b>Natural Sciences (19 hours) (satisfies natural sciences core curriculum requirement)</b>		

BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
EXSC 2460	Human Anatomy And Physiology I Lab <sup>B- or better for PA program</sup>	1
EXSC 2560	Anatomy and Physiology I <sup>B- or better for PA program</sup>	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1

Code	Title	Hours
<b>Multicultural Studies (3 hours from UToledo core curriculum)</b>		

Code	Title	Hours
<b>Required Major Courses (33 hours)</b>		

HHS 1020	Introduction to Health Sciences II <sup>C or better</sup>	2
HHS 3100	Introduction to Social Determinants of Health <sup>C or better</sup>	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science <sup>C or better</sup>	3

HHS 4100	Foundations of Healthcare Delivery <sup>C or better</sup>	3
COUN 3000	Cultural Competence in Health and Human Services Professions <sup>C or better</sup>	3
EXSC 2470	Human Anatomy And Physiology II Lab <sup>C or better</sup>	1
EXSC 2570	Human Anatomy and Physiol II <sup>C or better</sup>	3
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology <sup>C or better</sup>	3
LGL 4230	Health Care And The Law <sup>C or better</sup>	3
PHIL 3370	Medical Ethics <sup>C or better</sup>	3
MATH 2600	Introduction To Statistics <sup>C or better</sup>	3
<b>Total Hours</b>		<b>33</b>

Code	Title	Hours
<b>Pre-Physician Assistant (27 hours) Concentration</b>		

BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
PSY 2510	Lifespan Developmental Psychology	3
BIOL 3010	Molecular Genetics	3
BIOL 3030	Cell Biology	3
BIOL 4030	Microbiology	3
BIOL 4040	Microbiology Laboratory	1
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
<b>Total Hours</b>		<b>27</b>

Code	Title	Hours
<b>Supplemental Major Course (select one) 3-4 hours</b>		

HEAL 4700	Nutritional Science	3
or EXSC 3520 & EXSC 3530	Applied Exercise Physiology and Applied Exercise Physiology Laboratory	
or EXSC 4540 & EXSC 4550	Applied Biomechanics and Applied Biomechanics Lab	
or EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	

Code	Title	Hours
<b>General Electives to meet 120 credit hours and fulfill upper-level course requirements</b>		

- Health Sciences - Human Performance & Fitness Promotion Concentration, BS (p. 302)
- Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS (p. 303)
- Health Sciences - Pre-Medical Professions Concentration, BS (p. 304)
- Health Sciences - Pre-Physician Assistant Concentration, BS (p. 304)



## Health Sciences - Human Performance & Fitness Promotion Concentration, BS Plan of Study

First Term		Hours
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
ENGL 1110	College Composition I	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
MATH 1340	College Algebra And Trigonometry	5
Elective		3

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**Hours** **17**

Second Term		Hours
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HEAL 1800	Medical Terminology	3
HHS 1020	Introduction to Health Sciences II	2
PSY 1010	Principles Of Psychology	3

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**Hours** **15**

Third Term		Hours
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
HHS 3100	Introduction to Social Determinants of Health	3
Diversity of US OR Non-Diversity of US		3

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**Hours** **15**

Fourth Term		Hours
EXSC 3520	Applied Exercise Physiology	3
EXSC 3530	Applied Exercise Physiology Laboratory	1
COUN 3000	Cultural Competence in Health and Human Services Professions	3
SOC 1010	Introduction To Sociology	3
Arts/Humanities Core		3
Elective		3

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**Hours** **16**

Fifth Term		Hours
EXSC 3830	Principles of Strength Conditioning	3
EXSC 3850	Cardiac Dysrhythmia Interpretation	3
EXSC 3860	Cardiac Dysrhythmia Lab	1
EXSC 4830	Principles of Endurance Conditioning	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1

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**Hours** **15**

Sixth Term		Hours
EXSC 4850	Clinical Exercise Testing	3
EXSC 4860	Clinical Exercise Testing Lab	1
EXSC 3680	Sport and Exercise Pharmacology	3
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
Elective		3

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**Hours** **16**

Seventh Term		Hours
EXSC 4140	Fitness Internship I	4
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
EXSC 2580	Human Pathophysiology For Health Care	3
Supplemental Major Course		3-4

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**Hours** **13-14**

Eighth Term		Hours
EXSC 4840	Fitness Internship II	4
US Diversity OR Non-US Diversity		3
LGL 4230	Health Care And The Law	3
PHIL 3370	Medical Ethics	3

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**Hours** **13**

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**Total Hours** **120-121**

## Health Sciences - Pre-Athletic Training and Pre- Physical Therapy Concentration, BS Plan of Study

First Term		Hours
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
HHS 1010	Introduction to Health Sciences I with Orientation	1
ENGL 1110	College Composition I	3
MATH 1340	College Algebra And Trigonometry	5

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**Hours** **14**

Second Term		Hours
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
PSY 1010	Principles Of Psychology	3
HHS 1020	Introduction to Health Sciences II	2
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Arts/Humanities Core		3

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**Hours** **16**

Third Term		Hours
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
SOC 1010	Introduction To Sociology	3



EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
HHS 3100	Introduction to Social Determinants of Health	3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
HEAL 1800	Medical Terminology	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
COUN 3000	Cultural Competence in Health and Human Services Professions	3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
EXSC 3520	Applied Exercise Physiology	3
EXSC 3530	Applied Exercise Physiology Laboratory	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
PSY 2200	Abnormal Psychology (or PSY 2510 or PSY 2700)	3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
Arts/Humanities Core		3
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
HHS 4100	Foundations of Healthcare Delivery	3
EXSC 2580	Human Pathophysiology For Health Care	3
<b>Hours</b>		<b>14</b>
<b>Seventh Term</b>		
MATH 2600	Introduction To Statistics	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
PHIL 3370	Medical Ethics	3
EXSC 4540	Applied Biomechanics	3
EXSC 4550	Applied Biomechanics Lab	1
Elective		3
<b>Hours</b>		<b>16</b>
<b>Eighth Term</b>		
LGL 4230	Health Care And The Law	3
Diversity of US OR Non-Diversity of US		3
Supplemental Major Course		3
Elective		3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>120</b>

## Health Sciences - Pre-Medical Professions Concentration, BS Plan of Study

<b>First Term</b>		<b>Hours</b>
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
HHS 1010	Introduction to Health Sciences I with Orientation	1
MATH 1340	College Algebra And Trigonometry	5
<b>Hours</b>		<b>16</b>
<b>Second Term</b>		
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
HHS 1020	Introduction to Health Sciences II	2
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>15</b>
<b>Third Term</b>		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 3100	Introduction to Social Determinants of Health	3
<b>Hours</b>		<b>14</b>
<b>Fourth Term</b>		
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
COUN 3000	Cultural Competence in Health and Human Services Professions	3
PSY 1010	Principles Of Psychology	3
<b>Hours</b>		<b>14</b>
<b>Fifth Term</b>		
CHEM 3510	Biochemistry I	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
SOC 1010	Introduction To Sociology	3
HEAL 1800	Medical Terminology	3
<b>Hours</b>		<b>14</b>

<b>Sixth Term</b>		
PHYS 2080	General Physics II	5
HHS 4100	Foundations of Healthcare Delivery	3
Non-US Diversity or US Diversity Elective		3
Elective		3
EXSC 2580	Human Pathophysiology For Health Care	3
<b>Hours</b>		<b>17</b>
<b>Seventh Term</b>		
MATH 2600	Introduction To Statistics	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
PHIL 3370	Medical Ethics	3
Elective		3
Supplemental Major Course		3-4
<b>Hours</b>		<b>15-16</b>
<b>Eighth Term</b>		
LGL 4230	Health Care And The Law	3
Arts/Humanities Core		3
Elective		3
Elective		3
Non-US Diversity or US Diversity Elective		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>120-121</b>

### Health Sciences - Pre-Physician Assistant Concentration, BS Plan of Study

<b>First Term</b>		<b>Hours</b>
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
HHS 1010	Introduction to Health Sciences I with Orientation	1
MATH 1340	College Algebra And Trigonometry	5
<b>Hours</b>		<b>16</b>
<b>Second Term</b>		
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
HHS 1020	Introduction to Health Sciences II	2
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>15</b>
<b>Third Term</b>		
CHEM 2410	Organic Chemistry I	3

CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 3100	Introduction to Social Determinants of Health	3
<b>Hours</b>		<b>14</b>

<b>Fourth Term</b>		
BIOL 3010	Molecular Genetics	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 1800	Medical Terminology	3
COUN 3000	Cultural Competence in Health and Human Services Professions	3
PSY 1010	Principles Of Psychology	3
<b>Hours</b>		<b>16</b>

<b>Fifth Term</b>		
BIOL 3030	Cell Biology	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
PSY 2510	Lifespan Developmental Psychology	3
SOC 1010	Introduction To Sociology	3
<b>Hours</b>		<b>14</b>

<b>Sixth Term</b>		
BIOL 4030	Microbiology	3
BIOL 4040	Microbiology Laboratory	1
HHS 4100	Foundations of Healthcare Delivery	3
EXSC 2580	Human Pathophysiology For Health Care	3
Elective		3
Non-US Diversity /US Diversity Elective		3
<b>Hours</b>		<b>16</b>

<b>Seventh Term</b>		
MATH 2600	Introduction To Statistics	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
PHIL 3370	Medical Ethics	3
Elective		3
Supplemental Major Course		3-4
<b>Hours</b>		<b>15-16</b>

<b>Eighth Term</b>		
LGL 4230	Health Care And The Law	3
Arts/Humanities Core		3
Non-US Diversity /US Diversity Elective		3
Elective		3
Elective		2
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>120-121</b>

- Health Sciences - Human Performance & Fitness Promotion Concentration, BS (p. 305)
- Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS (p. 306)
- Health Sciences - Pre-Medical Professions Concentration, BS (p. 306)
- Health Sciences - Pre-Physician Assistant Concentration, BS (p. 306)

### **Health Sciences - Human Performance & Fitness Promotion Concentration, BS Learning Outcomes**

- Identify careers for a health science degree graduate, how to pursue them and how to meet regulatory standards
- Develop foundational healthcare knowledge and concepts for entry into graduate healthcare programs or professional career in health-related fields
- Identify the social determinants of health and their impact on health disparities
- Describe cultural responsiveness and humility and their role in delivering patient and client-centered care in an evolving healthcare landscape
- Explain ethical responsibility in healthcare and its role in patient and client-centered care
- Identify health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations
- Explain how to locate, appraise and utilize evidence to positively impact health
- Describe healthcare informatics and how it can be used to ensure quality improvement and improve health outcomes
- Describe interprofessional collaborative practice and its role in optimizing patient and client care
- Describe multiple aspects of the social environment and identify how social determinants of health contribute to healthcare disparities
- Develop foundational knowledge and skills to prepare students to work in the human performance and fitness promotion fields

### **Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS Learning Outcomes**

- Identify careers for a health science degree graduate, how to pursue them and how to meet regulatory standards
- Develop foundational healthcare knowledge and concepts for entry into graduate healthcare programs or professional career in health-related fields
- Identify the social determinants of health and their impact on health disparities
- Describe cultural responsiveness and humility and their role in delivering patient and client-centered care in an evolving healthcare landscape
- Explain ethical responsibility in healthcare and its role in patient and client-centered care

- Identify health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations
- Explain how to locate, appraise and utilize evidence to positively impact health
- Describe healthcare informatics and how it can be used to ensure quality improvement and improve health outcomes
- Describe interprofessional collaborative practice and its role in optimizing patient and client care
- Describe multiple aspects of the social environment and identify how social determinants of health contribute to healthcare disparities
- Develop foundational knowledge for study in the pre-athletic training and pre-physical therapy concentration

### **Health Sciences - Pre-Medical Professions Concentration, BS Learning Outcomes**

- Identify careers for a health science degree graduate, how to pursue them and how to meet regulatory standards
- Develop foundational healthcare knowledge and concepts for entry into graduate healthcare programs or professional career in health-related fields
- Identify the social determinants of health and their impact on health disparities
- Describe cultural responsiveness and humility and their role in delivering patient and client-centered care in an evolving healthcare landscape
- Explain ethical responsibility in healthcare and its role in patient and client-centered care
- Identify health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations
- Explain how to locate, appraise and utilize evidence to positively impact health
- Describe healthcare informatics and how it can be used to ensure quality improvement and improve health outcomes
- Describe interprofessional collaborative practice and its role in optimizing patient and client care
- Describe multiple aspects of the social environment and identify how social determinants of health contribute to healthcare disparities
- Develop foundational knowledge for study in the pre-medical concentration

### **Health Sciences - Pre-Physician Assistant Concentration, BS Learning Outcomes**

- Identify careers for a health science degree graduate, how to pursue them and how to meet regulatory standards
- Develop foundational healthcare knowledge and concepts for entry into graduate healthcare programs or professional career in health-related fields

- Identify the social determinants of health and their impact on health disparities
- Describe cultural responsiveness and humility and their role in delivering patient and client-centered care in an evolving healthcare landscape
- Explain ethical responsibility in healthcare and its role in patient and client-centered care
- Identify health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations
- Explain how to locate, appraise and utilize evidence to positively impact health
- Describe healthcare informatics and how it can be used to ensure quality improvement and improve health outcomes
- Describe interprofessional collaborative practice and its role in optimizing patient and client care
- Describe multiple aspects of the social environment and identify how social determinants of health contribute to healthcare disparities
- Develop foundational knowledge for study in pre-physician assistant concentration.

- obtain a career in the field of public health education; or
- seek graduate education in a public health field.

The public health field is growing increasingly competitive. To enroll in the core requirement courses, including the sophomore level practicum and 400-hour senior internship, a minimum 2.7 GPA is required. Because of the strong engagement with the community, students are held to a high level of professionalism. Students are expected to:

- perform with excellence in the classroom;
- act with a high level of professionalism in all areas;
- join and actively participate in Eta Sigma Gamma, our student organization;
- attend local, state, and/or regional professional conferences;
- get involved in research with faculty members; and
- participate in community service.

## BS in Public Health

The University of Toledo offers a bachelor of science degree in public health. This degree requires 120 credit hours for graduation. The public health program is designed to prepare students to work in non-profit health organizations, in local, state and national government health agencies, or in worksite wellness. The mission of the undergraduate public health program is to prepare students to use theory-driven approaches to promote health and prevent disease within specific populations.

Public health majors help people improve their quality of life. Studying public health teaches students how to design, implement, and evaluate programs to promote health and prevent disease. The program explores critical health issues such as nutrition, substance abuse, human sexuality, health behaviors, environmental health, and disease prevention. Students learn through hands-on practice by shadowing health professionals in their first year. In their second year, students earn credit through a “mini-internship” with a community agency or organization. Finally, fourth year students gain real-world experience through a 400-hour internship with the agency or organization of their choice.

### Public Health Pre-Medical track

The public health pre-medical track is a 120 credit hour option within the existing bachelor of science in public health degree program. The pre-medical track is targeted toward those students who are interested in impacting the health and well-being of communities and want to build upon that with a medical degree following completion of the bachelor's degree. This track provides several options upon completion of the degree:

- meet requirements for admission into most medical schools and also have additional coursework that will provide a strong foundation for a physician;

Code	Title	Hours
<b>Required courses:</b>		
HEAL 2000	Foundations Of Health Education	3
HEAL 2500	Personal Health	3
HEAL 2700	Introduction to Public Health	3
HEAL 2750	Introduction to Epidemiology	3
HEAL 2940	Practicum In Community Health	2
HEAL 3000	Global Health	3
HEAL 3500	Environmental Health	3
HEAL 3600	Prevention And Control Of Disease	3
<i>Required professional division courses:</i>		
HEAL 4100	Health Behavior	3
HEAL 4200	Methods And Materials In Community Health	3
HEAL 4250	Program Evaluation	3
HEAL 4800	Public Health Research And Statistics	3
HEAL 4940	Senior Field Experience	6
<i>Public Health Content - select six courses from the following:</i>		
COMM 3760	Health Communication	
HEAL 1800	Medical Terminology	
HEAL 2100	Living Well	
HEAL 2400	General Safety	
HEAL 2600	Mental Health	
HEAL 3200		
HEAL 3300	Drug Awareness	
HEAL 3700	Foundations Of Human Sexuality	
HEAL 3800	Death And Dying	
HEAL 4500	Women's Health Care	
HEAL 4560	Health Problems Of Aging	
HEAL 4700	Nutritional Science	
<i>Public Health Supporting - select two courses from the following:</i>		
ANTH 3330	Food, Health, Society	
ANTH 4760	Medical Anthropology	
CMPT 1100	Microsoft Office Applications	
COMM 2000	Media Communication And Society	
COMM 2600	Public Presentations	

COMM 2820	Group Communication
PHIL 3370	Medical Ethics
PSY 2200	Abnormal Psychology
PSY 2510	Lifespan Developmental Psychology
PSY 2700	Social Psychology
SOC 1020	Social Problems
SOC 2640	Race, Class, And Gender
SOC 4160	Health And Gender
SOC 4180	Medical Sociology

- Bachelor of Science in Public Health (p. 349)
- Bachelor of Science in Public Health: Pre-Medical track (p. 349)

## BS in Public Health

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
ENGL 1110	College Composition I	3
HEAL 2000	Foundations Of Health Education	3
HHS 1000	Health And Human Services/College Orientation	1
MATH 1320	College Algebra	3
Arts/Humanities Core		3
Diversity of US		3
<b>Hours</b>		<b>16</b>
Second Term		Hours
BIOL 2010	Major Concepts In Biology	3
ENGL 2950	Technical Writing	3
HEAL 2500	Personal Health	3
HEAL 2700	Introduction to Public Health	3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
Third Term		Hours
EEES 1130	Down To Earth: Environmental Science	3
EXSC 1560	Fundamentals of Anatomy and Physiology	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
HEAL 2750	Introduction to Epidemiology	3
Public Health Content Course		3
UT Core Elective		3
<b>Hours</b>		<b>16</b>
Fourth Term		Hours
EEES 1170	Microbes And Society	3
HEAL 2940	Practicum In Community Health	2
Public Health Content Course		3
Public Health Content Course		3
Public Health Content Course		3
Elective		2
<b>Hours</b>		<b>16</b>

Fifth Term		Hours
HEAL 3000	Global Health	3
HEAL 3600	Prevention And Control Of Disease	3
Public Health Content Course		3
Social Sciences Core		3
Non-US Diversity		3
<b>Hours</b>		<b>15</b>

Sixth Term		Hours
EXSC 3240	Concepts of Exercise Fitness and Health Strategies	3
HEAL 3500	Environmental Health	3
Public Health Support Course		3
Public Health Support Course		3
Elective		3
<b>Hours</b>		<b>15</b>

Seventh Term		Hours
HEAL 4100	Health Behavior	3
HEAL 4200	Methods And Materials In Community Health	3
Social Sciences Core		3
Public Health Content Course		3
Elective		3
<b>Hours</b>		<b>15</b>

Eighth Term		Hours
HEAL 4250	Program Evaluation	3
HEAL 4800	Public Health Research And Statistics	3
HEAL 4940	Senior Field Experience	6
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

Courses noted with FL or SP are only offered in those semesters.

## BS in Public Health – Pre-Medical track

Below is a sample plan of study. Consult your degree audit for your program requirements.

All students must maintain a GPA of 3.0 or higher to remain in good standing in the pre-medical track.

First Term		Hours
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1200	Problem Solving In General Chemistry	1
CHEM 1230	General Chemistry I <sup>1</sup>	4
CHEM 1280	General Chemistry Lab I <sup>1</sup>	1
ENGL 1110	College Composition I	3
HHS 1000	Health And Human Services/College Orientation	1
<b>Hours</b>		<b>15</b>

**Second Term**

BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1240	General Chemistry II <sup>1</sup>	4
CHEM 1290	General Chemistry Lab II <sup>1</sup>	1
ENGL 2950	Technical Writing	3
Social Sciences Core		3
<b>Hours</b>		<b>16</b>

**Third Term**

CHEM 2410	Organic Chemistry I <sup>1</sup>	3
CHEM 2430	Recitation For Organic Chemistry I	1
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors <sup>1</sup>	1
EXSC 2510	Human Anatomy <sup>1</sup>	3
EXSC 2520	Human Anatomy Lab <sup>1</sup>	1
HEAL 2700	Introduction to Public Health	3
MATH 1340	College Algebra And Trigonometry <sup>1</sup>	5
<b>Hours</b>		<b>17</b>

**Fourth Term**

CHEM 2420	Organic Chemistry II <sup>1</sup>	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors <sup>1</sup>	1
EXSC 2530	Human Physiology <sup>1</sup>	3
EXSC 2540	Human Physiology Lab <sup>1</sup>	1
MATH 2600	Introduction To Statistics	3
Arts/Humanities Core (Diversity of US)		3
<b>Hours</b>		<b>14</b>

**Fifth Term**

CHEM 3510	Biochemistry I (FL)	3
HEAL 2750	Introduction to Epidemiology (FL)	3
HEAL 3000	Global Health (FL)	3
PHYS 2070	General Physics I (FL) <sup>1</sup>	4
PHYS 2075	General Physics I - Lab (FL) <sup>1</sup>	1
<b>Hours</b>		<b>14</b>

**Sixth Term**

HEAL 3500	Environmental Health (SP)	3
HEAL 3600	Prevention And Control Of Disease	3
HEAL 4800	Public Health Research And Statistics (SP)	3
PHYS 2080	General Physics II (SP)	4
PHYS 2085	General Physics II - Lab (SP)	1
<b>Hours</b>		<b>14</b>

**Seventh Term**

HEAL 4100	Health Behavior (FL)	3
HEAL 4200	Methods And Materials In Community Health (FL)	3
HEAL 4700	Nutritional Science	3
Arts/Humanities Core (Non-US Diversity)		3

Support Elective	3
<b>Hours</b>	<b>15</b>

**Eighth Term**

HEAL 3800	Death And Dying	3
HEAL 4250	Program Evaluation	3
HEAL 4940	Senior Field Experience	6
Social Sciences Core		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> A "C" or better is required in this course.

Courses noted with FL or SP are only offered in those semesters.

- PLO 1. Identify the historical foundations for public health.
- PLO 2. Describe social determinants of health and how they impact communities.
- PLO 3. Identify major health related issues and how public health can impact them.
- PLO 4. Describe why evidence-based approaches are an essential part of public health practice.
- PLO 5. Describe the basic principles and methods of epidemiology and their application to public health.
- PLO 6. Describe leading global health concerns including their causes, distribution, and response strategies.
- PLO 7. Describe the relationship between the environment and the health of individuals and communities.
- PLO 8. Explain personal impacts on the environment and how that can impact health.
- PLO 9. Explain factors that lead to increased risk for infectious and chronic disease and strategies to reduce these risks.
- PLO 10. Use health theories/models to explain why people engage in behaviors that promote and/or compromise health.
- PLO 11. Demonstrate how health theories/models are used as the foundation for interventions/programs.
- PLO 12. Describe how to plan for the implementation of health promotion/disease prevention programs.
- PLO 13. Demonstrate cultural humility through the design of culturally appropriate methods and materials for health promotion/disease prevention programs.
- PLO 14. Describe various types of program evaluation and when they are most appropriately used.
- PLO 15. Demonstrate how to align program goals, objectives, activities and evaluation.
- PLO 16. Apply public health skills in community settings to impact the health of a local population.
- PLO 17. Describe various research methods that are used in the public health field.
- PLO 18. Conduct basis statistical analyses on health related data.
- PLO 19. Describe ethical considerations when conducting public health research.

## Minor in Public Health

Public health is a diverse and dynamic field. Public health professionals come from varying educational backgrounds and can specialize in an array of fields. A host of specialists, including teachers, medical professionals, journalists, researchers, administrators, social workers, environmentalists, laboratory sciences, demographers, and attorneys work to protect the health of the public.

The Institute of Medicine (IOM) determined that keeping the public healthy required a well educated public health workforce and educated citizens. The IOM recommends that all undergraduates have access to education in public health. Furthermore, the changing health care system in America will undoubtedly place more emphasis on primary prevention in the future. As specialists in prevention, students with a public health background will be well suited to meet these societal demands. Additionally, students with this minor will be better prepared should they desire graduate education in the field of public health.

A minimum of 21 credit hours is required to complete the minor. The internship includes 150 hours of field experience.

Code	Title	Hours
HEAL 2700	Introduction to Public Health	3
HEAL 2750	Introduction to Epidemiology (FL)	3
HEAL 3000	Global Health (FL)	3
HEAL 3600	Prevention And Control Of Disease	3
HEAL 4100	Health Behavior (FL)	3
HEAL 4940	Senior Field Experience	3
Elective Course (select one)		3
ECON 4750	Health Economics	
HEAL 3500	Environmental Health (SP)	
HEAL 4800	Public Health Research And Statistics (SP)	
SOC 4180	Medical Sociology	

Courses noted with FL or SP are only offered in those semesters. Students will be required to meet all of the prerequisites and co-requisites for the courses in the minor.

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# College of Medicine and Life Sciences

## UnderGRADUATE CATALOG 2024-2025

The University of Toledo College of Medicine and Life Sciences is dedicated to improving health in the communities and region we serve. We do this by educating excellent clinicians and scientists, by providing patient centered and high-quality care and by producing nationally recognized research in focused area.

The College of Medicine offers a world-class education with medical degrees, dual degree programs, graduate degrees, graduate certificates, and undergraduate certificates in Emergency Medical Services (EMS).

Our state-of-the-art Interprofessional Immersive Simulation Center (<http://www.utoledo.edu/centers/iisc/>) reflects today's reality of medicine. Students in differing specialties are learning the importance of interdisciplinary teamwork and collaboration. The three-story, 65,000-square-foot facility is the first in the nation to incorporate three integrated simulation centers: a progressive anatomy and surgical skills center, an advanced clinical simulation center, and a virtual immersive reality center.

### MISSION

The mission of The University of Toledo College of Medicine and Life Sciences is to improve health in the communities and region we serve. We do this by educating excellent clinicians and scientists, by providing patient centered and high-quality care and by producing nationally recognized research in focused area.

### VISION

The University of Toledo College of Medicine and Life Sciences, with its partner ProMedica, is nationally recognized for education and focused research, and regionally distinguished for comprehensive clinical care.

### Dr. Imran Ali

Interim Dean, College of Medicine and Life Sciences (<https://www.utoledo.edu/med/>)

### HEALTH SCIENCE CAMPUS

#### Undergraduate Programs - EMS Education

419.383.1705

EMSEducation@utoledo.edu

## Emergency Medical Services (EMS) Education

Emergency Medical Services, more commonly known as EMS, is a system that provides emergency medical care. Once it is activated by an incident that causes serious illness or injury, the focus of EMS is the emergency medical care of the patient(s).

EMS is most easily recognized when emergency vehicles or helicopters are seen responding to emergency incidents. But EMS is much more than a ride to the hospital. It is a system of coordinated response and emergency medical care, involving multiple people and agencies. A comprehensive EMS system is ready every day for every kind of emergency. EMS does not exist in isolation but is integrated with other

services and systems intended to maintain and enhance the community's health and safety.

The University of Toledo Emergency Medical Services (EMS) Program offers blended **Basic EMT courses** over one- and two-semester options, as well as a blended **Paramedic course** over a one-year (three-semester) certificate program under UToledo's College of Medicine and Life Sciences (<https://www.utoledo.edu/med/>). The Basic EMT one-semester option is only available to those students taking less than (6) CH as it is an accelerated course geared for the public.

Didactic education is 100% online with in-person skills labs and in-person clinical rotations. Every Thursday will be a 3-hour online required didactic review with the class and Instructor.

Skills labs are offered Tues, Weds, and Thurs 0800-1600 for specific courses with the flexibility for students to choose attendance in the Paramedic and two-semester EMT program which days they would like to attend. One day is required every other week.

We use experienced instructors and a variety of other well-trained medical professionals to facilitate training using low and high-fidelity simulation for scenario-based learning and cadaveric experiences for real-life skill and procedural performance.

To be admitted to the program, students must meet pre-requirements that include an in-person meeting with the Program Director, and department administered reading exam and meet all pre-requirements. Those pre-requirements include an FBI background check, a current American Heart (AHA) CPR card, and completed health and immunization requirements. Students are encouraged to contact the department and schedule a meeting time at least 30 days in advance before the course begins.

The University of Toledo Emergency Medical Services (EMS) Program (<https://www.utoledo.edu/med/ems/about.html>) produces competent entry-level emergency medical responders in the area of cognitive, psychomotor, and effective/behavioral domains.

The program boasts a 100% pass rate for the State of Ohio DPS EMT and Paramedic Certified status and a 100% employment rate in the EMS field.

For further information, please visit <https://www.utoledo.edu/med/ems/>

*With cutting-edge technologies and a wide variety of opportunities for interprofessional interactions, UToledo's EMS students are trained and prepared for real patient interaction like no other students in the Midwest.* Students trained through UToledo's EMS Education program will receive college credit for coursework completed and receive some of the most cutting-edge and high-tech training available in the U.S. Students have access to many of UToledo's cutting-edge training and simulation centers such as The Interprofessional Immersive Simulation Center (IISC) (<https://www.utoledo.edu/centers/iisc/>) and the Hillebrand Clinical Skills Center. (<https://www.utoledo.edu/centers/csc/>) Through various forms of training and simulation, students gain hands-on experience in areas such as:

**1) Gross Anatomy: Hands-on** experience with both fresh and embalmed cadavers is provided for students as they complete their coursework in anatomy & physiology and advanced airway skills development.

**2) Clinical Skills:** Utilizing both pre-programmed mechanical and real-life (actor) patients, students develop and evaluate communication and assessment skills, and receive timely feedback and debriefing to enforce the educational benefit. Students also have access to hands-on skill labs for individual skill development.

**3) Simulated Patient Scenarios:** Students often have the opportunity to interact interprofessionally with students from other professions in controlled simulated scenarios. Students train with state-of-the-art computerized simulated patients for team scenarios. Events can be recorded and provide the ability to debrief and provide immediate feedback to individuals and teams, reinforcing performance concepts.

#### **4) Virtual Immersive Reality (VIR) and Computer-Aided Learning**

**Modules:** Technologies used include virtual immersive stereoscopic 3D model modules along with a variety of advanced educational learning modules.

The successful completion of the coursework supports the application for the state of Ohio's EMS certificate and National Registry.

- EMT Basic, Certificate (p. 358)
- EMT Paramedic Certificate (p. 356)

#### **EMS 1220 Emergency Medical Technician Basic 1**

[3 credit hours]

Emergency Medical Technicians are entry level health care providers of emergency medical services. EMTs are clinicians, trained to respond quickly to emergency situations regarding medical issues, traumatic injuries and accident scenes. This course provides fundamental knowledge and training across the breadth of Emergency Medical Services (EMS). This is part one of 2 sections needed for licensure. Successful completion of both EMT-B1 and EMT B2 courses makes students eligible for state and national certification. This is a two-semester "blended" program with online didactics and in-person skills labs. Skill labs are required and are offered on Tuesdays or Wednesdays every other week from 08:00-14:00. This course is designed for students to take as an elective that are carrying more than 6 credit hours.

**Term Offered:** Fall

#### **EMS 1230 Emergency Medical Technician Basic 2**

[4 credit hours]

Emergency Medical Technicians are entry level health care providers of emergency medical services. EMTs are clinicians, trained to respond quickly to emergency situations regarding medical issues, traumatic injuries and accident scenes. This course provides fundamental knowledge and training across the breadth of Emergency Medical Services (EMS). This is part two of 2 courses needed for licensure. Successful completion of both EMT-B1 and EMT B2 courses makes student eligible for state and national certification. This is a "blended" program with online didactics and in-person skill labs. Skill labs are required and occur on Tuesdays or Wednesdays EVERY OTHER WEEK.

**Prerequisites:** EMS 1220 with a minimum grade of D-

**Term Offered:** Spring

#### **EMS 1240 Emergency Medical Technician Field Experience**

[1 credit hour]

Emergency Medical Technicians are entry level health care providers of emergency medical services. EMTs are clinicians, trained to respond quickly to emergency situations regarding medical issues, traumatic injuries and accident scenes. This course provides fundamental knowledge and training across the breadth of Emergency Medical Services (EMS). This is part 3 of 3 sections needed for licensure. This is to be arranged with instructors and clinical coordinator during EMT-B1 OR EMT-B2. Successful completion of EMT-B1, EMT B2 and EMT Field Experience courses makes student eligible for state and national certification.

**Corequisites:** EMS 1230

**Term Offered:** Spring

#### **EMS 1250 Emergency Medical Technician- Basic**

[7 credit hours]

Emergency Medical Technicians are entry level health care providers of emergency medical services. EMTs are clinicians, trained to respond quickly to emergency situations regarding medical issues, traumatic injuries and accident scenes. This course provides fundamental knowledge and training across the breadth of Emergency Medical Services (EMS). Successful completion of this course makes the student eligible for state and national certification. This one semester is a compressed option designed specifically for students that are not enrolled in more than 6 credit hours. A two-semester option is available for those students seeking this certificate course as an elective. This course includes a clinical component near the end that requires the student to complete a 10 hour/10 patient assessment requirement in the ED or Squad setting.

**Term Offered:** Spring

#### **EMS 1300 Anatomy & Physiology for the Prehospital Provider**

[4 credit hours]

The systemic approach to anatomy and physiology is presented to the student. The knowledge is a fundamental portion of the education of any health care provider and is paramount for successful practice as an EMS provider. Under the current national paramedic curriculum, it has become necessary to expose students to a broader range of information. It will be the focus of this course to better equip the student with structure and function of the human body that will allow a student to recognize the homeostatic state.

**Term Offered:** Summer

#### **EMS 1310 Paramedic I**

[10 credit hours]

This is the first of three courses that provide training for students to become certified paramedics. The course covers a variety of preparatory topics such as legal considerations, assessment, pharmacology, venous access, medication administration, EKG interpretation, and assessment/management of cardiovascular emergencies. It also incorporates hands-on application thru skill labs, simulation, and direct patient contact in a clinical environment. Upon successful completion of this course, the student will be eligible enroll in Paramedic II. In addition to EMS Basic EMT certification, an applicant for this course must have successfully completed an approved Anatomy class and an EMS Program Entrance Examination.

**Term Offered:** Fall

**EMS 1320 Paramedic II**

[10 credit hours]

This is the second of three courses that provide training for students to become certified paramedics. This course covers a variety of medical emergencies (ie: respiratory, neurology, endocrinology, etc.) as well as obstetric and gynecological emergencies, childbirth and neonatology, assessment and management of various conditions that involve pediatrics and geriatrics. It also incorporates hands-on application thru skill labs, simulation, and direct patient contact in a clinical environment. Upon successful completion of this course, the student will be eligible enroll in Paramedic III.

**Prerequisites:** EMS 1310 with a minimum grade of D-**Term Offered:** Spring**EMS 1330 Paramedic III**

[10 credit hours]

This is the last of three courses that provide training for students to become certified paramedics. This course will complete the remaining paramedic curriculum with Operational topics such as Rescue, Mass Casualties, etc. The student will also finish all necessary field and clinical requirements, and must demonstrate "street readiness" while completing EMS field Internship hours. Upon successful completion, students are eligible to take the National Registry Examination for certification as a Paramedic.

**Prerequisites:** EMS 1320 with a minimum grade of C**Term Offered:** Summer**EMS 2310 Paramedic I**

[10 credit hours]

This is the first of three courses that provide training for students to become certified paramedics. The course covers a variety of preparatory topics such as legal considerations, assessment, pharmacology, venous access, medication administration, EKG interpretation, and assessment/management of cardiovascular emergencies. It also incorporates hands-on application thru skill labs, simulation, and direct patient contact in a clinical environment. Upon successful completion of this course, the student will be eligible enroll in Paramedic II. In addition to EMS Basic EMT certification, an applicant for this course must have successfully completed an approved Anatomy class and an EMS Program Entrance Examination.

**Term Offered:** Spring, Fall**EMS 3320 Paramedic II**

[10 credit hours]

This is the second of three courses that provide training for students to become certified paramedics. This course covers a variety of medical emergencies (ie: respiratory, neurology, endocrinology, etc.) as well as obstetric and gynecological emergencies, childbirth and neonatology, assessment and management of various conditions that involve pediatrics and geriatrics. It also incorporates hands-on application thru skill labs, simulation, and direct patient contact in a clinical environment. Upon successful completion of this course, the student will be eligible enroll in Paramedic III.

**Prerequisites:** EMS 2310 with a minimum grade of C**Term Offered:** Spring, Summer**EMS 4330 Paramedic III**

[10 credit hours]

This is the last of three courses that provide training for students to become certified paramedics. This course will complete the remaining paramedic curriculum with Operational topics such as Rescue, Mass Casualties, etc. The student will also finish all necessary field and clinical requirements, and must demonstrate "street readiness" while completing EMS field Internship hours. Upon successful completion, students are eligible to take the National Registry Examination for certification as a Paramedic.

**Prerequisites:** EMS 3320 with a minimum grade of C**Term Offered:** Summer, Fall

## EMT Paramedic Certificate

Emergency Medical Services, more commonly known as EMS, is a system that provides emergency medical care. Once it is activated by an incident that causes serious illness or injury, the focus of EMS is emergency medical care of the patient(s).

EMS is most easily recognized when emergency vehicles or helicopters are seen responding to emergency incidents. But EMS is much more than a ride to the hospital. It is a system of coordinated response and emergency medical care, involving multiple people and agencies. A comprehensive EMS system is ready every day for every kind of emergency. EMS does not exist in isolation, but is integrated with other services and systems intended to maintain and enhance the community's health and safety.

The University of Toledo Emergency Medical Services (EMS)

Program offers **Basic EMT courses** over one- and two-semester options, as well as **Paramedic courses** over a one-year (three semester) certificate program under UToledo's College of Medicine and Life Sciences (<https://www.utoledo.edu/med/>).

Didactic education is 100% online with in-person skills labs and in-person clinical rotations. Students will have either a Monday or Tuesday option for required skills lab via signup genius scheduled every other week. Every Thursday will be a 3-hour required didactic review with the class and Instructor.

We use experienced instructors and a variety of other well trained medical professionals to facilitate training using low and high fidelity simulation for scenario based learning and cadaveric experiences for real life skill and procedural performance.

The University of Toledo Emergency Medical Services (EMS) Program (<https://www.utoledo.edu/med/ems/about.html>) produces competent entry level emergency medical responders in the area of cognitive, psychomotor, and effective/behavioral domains.

The program boasts a 100% pass rate for the State of Ohio DPS EMT and Paramedic Certified status, and a 100% employment rate in the EMS field.

To be admitted to the program, students must meet pre-requirements that include an in-person meeting with the Program Director, successfully pass a department administered entrance exam and meet all pre-requirements. Those pre-requirements include an FBI background check, a current American Heart (AHA) CPR card, and completed health and immunization requirements. Students are encouraged to contact the

department and schedule a meeting time at least 30 days in advance before the course begins.

The University of Toledo Emergency Medical Services (EMS) Program (<https://www.utoledo.edu/med/ems/about.html>) produces competent entry-level emergency medical responders in the area of cognitive, psychomotor, and effective/behavioral domains.

For further information, please visit <https://www.utoledo.edu/med/ems/>

**With cutting edge technologies and wide variety of opportunities for interprofessional interactions, UToledo's EMS students are trained and prepared for real patient interaction like no other students in the Midwest.** Students trained through UToledo's EMS Education program will receive college credit for coursework completed and receive some of the most cutting edge and high tech training available in the U.S. Students have access to many of UToledo's cutting edge training and simulation centers such as The Interprofessional Immersive Simulation Center (IISC) (<https://www.utoledo.edu/centers/iisc/>) and the Hillebrand Clinical Skills Center. (<https://www.utoledo.edu/centers/csc/>) Through various forms of training and simulation, students gain hands on experience in areas such as:

**1) Gross Anatomy:** Hands on experience with both fresh and embalmed cadavers is provided for students as they complete their coursework in anatomy & physiology and advanced airway skills development.

**2) Clinical Skills:** Utilizing both pre-programmed mechanical and real-life (actor) patients, students develop and evaluate communication and assessment skills, and receive timely feedback and debriefing to enforce the educational benefit. Student's also have access to hands-on skill labs for individual skill development.

**3) Simulated Patient Scenarios:** Students often have the opportunity to interact interprofessionally with students from other professions in controlled simulated scenarios. Student's train with state of the art computerized simulated patients for team scenarios. Events can be recorded and provided the ability to debrief and provide immediate feedback to individuals and teams, reinforcing performance concepts.

**4) Virtual Immersive Reality (VIR) and Computer Aided Learning**

**Modules:** Technologies used include virtual immersive stereoscopic 3D model modules along with a variety of advanced educational learning modules.

The successful completion of the coursework supports the application for the state of Ohio's EMS certificate and National Registry.

Code	Title	Hours
EMS 2310	Paramedic I	10
EMS 3320	Paramedic II	10
EMS 4330	Paramedic III	10
<b>Total Hours</b>		<b>30</b>

MINIMUM percentage of 80% must be achieved in Paramedic I before advancing to Paramedic II and III

First Term	Hours
EMS 2310 Paramedic I	10
<b>Hours</b>	<b>10</b>

Second Term		Hours
EMS 3320	Paramedic II	10
<b>Hours</b>		<b>10</b>
Third Term		Hours
EMS 4330	Paramedic III	10
<b>Hours</b>		<b>10</b>
<b>Total Hours</b>		<b>30</b>

- PLO 1. Demonstrate knowledge of Human Systems , as related to emergency medical care.
- PLO 2. Distinguish between the needs and care of pediatric, adult, and geriatric patients in emergency medical care.
- PLO 3. Demonstrate proficiency in airway control of medical and trauma patients in emergency medical situations.
- PLO 4. Evaluate and properly treat dangerous cardiac rhythms, according to American Heart Association guidelines, in all patient types in emergency medical situations.
- PLO 5. As a member of an EMS team , evaluate, assess, treat, and transport a variety of patient types , in diverse settings in the community, in an emergency medical situation.
- PLO 6. As a member of an EMS team, demonstrate the ability to assess, treat, and transport a variety of patient types , in a wide range of realistic simulation scenarios.
- PLO 7. As a member of an EMS Team , act as the lead Paramedic in charge , and assess and treat 20 patients in the Capstone Experience. Each student in the capstone will delegate tasks to other paramedic members of the team , communicate with med control, and properly mitigate any emergencies, in accordance with local protocols, and recognized best standard of care.
- PLO 8. Properly demonstrate the acquisition of the following skills: mechanical ventilation of a patient, endotracheal intubation, use of a king airway device, appropriate oxygen administration, use of a cervical collar and backboard, EKG acquisition with proper interpretation and treatment, defibrillation, cardioversion and cardiac pacing, treatment of burns, splinting and treatment of fractures, administration of medications, preparation and insertion of an IV (adult and pediatric), administration of an intramuscular and subcutaneous injection, and bleeding control.
- PLO 9. Describe the body's physiologic response to changes in perfusion. Define shock and the pathophysiology of compensated and decompensated shock, and demonstrate the management of different types of shock.
- PLO 10. Distinguish between the priorities of medical versus trauma patients.
- PLO 11. Describe the role of communication in EMS, and demonstrate proper communication with other crew members, hospital staff, medical control, patients and their families.
- PLO 12. Outline and demonstrate the prehospital management of cerebral injuries.
- PLO 13. Describe and demonstrate the principals of triage and operations at a mass casualty incident.\n
- PLO 14. Discuss and demonstrate general safety principals that EMS personnel should follow at every incident.



- PLO 15. Discuss actions to take when responding to possible terrorists events.\n
- PLO 16. Discuss and demonstrate the principals of out of hospital births and their proper management, along with other prehospital obstetrical emergencies.
- PLO 17. Demonstrate the care and treatment of prehospital pediatric emergencies , from neonate to adolescents.

## EMT Basic, Certificate

**Code**                      **Title**    **Hours**

Designed for those students who are interested in EMS and need to have fewer credit hours per semester; pre-med students, nursing, etc. This Basic EMT course is divided into two semesters. Begins Fall semester/finish Spring

### Option One:

EMS 1220	Emergency Medical Technician Basic 1	3
EMS 1230	Emergency Medical Technician Basic 2	4

### Option Two:

EMS 1250	Emergency Medical Technician- Basic	7
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- PLO 1. Explain how concepts involving legal considerations, ethical decisions, roles, responsibilities, medical research, and quality improvement are integrated within EMS systems to provide the highest quality of patient care.
- PLO 2. Explain the importance and impact of taking appropriate steps to ensure the utilization of injury and illness prevention techniques, and consideration of various life styles in order to maintain a healthy and safe workplace.
- PLO 3. Discriminate between styles and techniques that can be used to effectively communicate with patients presenting with various cultural, age, and physical barriers.
- PLO 4. Describe the key anatomical parts and the function of each of the body's systems using medical terminology.
- PLO 5. Discriminate between the growth, development, and social traits of neonates, infants, toddlers, school-aged children, adolescents, adults, and geriatrics.
- PLO 6. Demonstrate the ability to assess and appropriately manage the airway, breathing, and oxygenation of a patient utilizing a variety of techniques and adjuncts.
- PLO 7. Perform a physical assessment, gather appropriate information, formulate an appropriate and thorough care plan for the management of a patient and document the events on a Patient Care Report (PR).
- PLO 8. Describe the pathophysiology, physical findings, symptoms and an appropriate treatment plan for a patient with a cardiovascular condition.\n
- PLO 9. Students will be expected to successfully demonstrate their ability to perform randomly selected skills covered throughout the course. (Students will be provided with specific skill forms at the beginning of the semester).
- PLO 10. Explain how concepts involving legal considerations, ethical decisions, roles, responsibilities, medical direction, research, and quality improvement are integrated within EMS systems to provide the highest quality of patient care. \*Explain the importance and

impact of taking appropriate steps to ensure the utilization of injury and illness prevention techniques, and consideration of various life styles in order to maintain a healthy and safe workplace.\n

- PLO 11. Discriminate between styles and techniques that can be used to effectively communicate with patients presenting with various cultural, age, and physical barriers.\n
- PLO 12. Describe the key anatomical parts and the function of each of the body's systems using medical terminology.\n
- PLO 13. Discriminate between the growth, development, and social traits of neonates, infants, toddlers, school-aged children, adolescents, adults, and geriatrics.\n
- PLO 14. Demonstrate the ability to assess and appropriately manage the airway, breathing, and oxygenation of a patient utilizing a variety of techniques and adjuncts.\n
- PLO 15. Perform a physical assessment, gather appropriate information, formulate an appropriate and thorough care plan for the management of a patient and document the events on a Patient Care Report (PR).
- PLO 16. Describe the pathophysiology, physical findings, symptoms and an appropriate treatment plan for a patient with a cardiovascular condition.\n

## Radiation Therapy, BS

The **Bachelor of Science in Radiation Therapy** is a 120 semester-hour program offered in-person within the College of Medicine and Life Sciences. The program is designed to provide students with the knowledge and skills required to be a certified radiation therapist. Two years of pre-specialization coursework is offered on Main Campus. An additional two years of professional training includes coursework offered on Health Science Campus, practical laboratories and exercises offered in the Department of Radiation Oncology where the program is housed and radiation therapy equipment is located, and practical training in local radiation therapy clinics. Students complete pre-specialization coursework in general education, foundational courses in health sciences, anatomy and physiology with lab, human pathophysiology for healthcare, medical terminology, and an advanced course in medical ethics.

The degree also includes an introductory course in radiation therapy; advanced coursework in radiation therapy physics, anatomy, patient care management, quality assurance, and radiation biology; courses with labs such as principles and practice of radiation therapy, imaging and processing, and dosimetry; a series of practicums in clinical facilities; and a culminating senior seminar.

An initial program enrollment of 35 full-time equivalent (FTE) students is anticipated for the degree program, with growth to 70 FTE students after four years.

Code	Title	Hours
ENGL 1110	College Composition I	3
HEAL 1800	Medical Terminology	3
MATH 1320	College Algebra	3
PSY 1010	Principles Of Psychology	3
ENGL 2950	Technical Writing	3
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
PHIL 1020	Critical Thinking	3
COMM 2840	Interpersonal Communication	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 3800	Death And Dying	3
MATH 2600	Introduction To Statistics	3
PHIL 3370	Medical Ethics	3
RDON 1010	Introduction to Radiation Therapy	3
PHIL 3370	Medical Ethics	3
EXSC 2580	Human Pathophysiology For Health Care	3
PHYS 1750	Introduction To Physics	4
RDON 3130	Principles & Practice of Radiation Therapy I	3
RDON 3100	Radiation Therapy Physics I	3
RDON 3110	Sectional Anatomy	3
RDON 3120	Patient Care Management	3
RDON 3140	Imaging and Processing in Radiation Oncology	3

RDON 3150	Imaging and Processing Lab	1
RDON 3210	Introduction to Clinical Practicum	5
RDON 3200	Radiation Therapy Physics II	3
RDON 3230	Principles & Practice of Radiation Therapy II	3
RDON 3240	Principles & Practices of Radiation Therapy II Lab	1
RDON 3300	Clinical Practicum I	7
RDON 4160	Radiation Biology for Radiation Therapy	3
RDON 4110	Dosimetry	3
RDON 4120	Dosimetry Lab	1
RDON 4130	Clinical Practicum II	6
RDON 4200	Quality Assurance & Operational Issues	3
RDON 4210	Senior Seminar in Radiation Therapy	3
RDON 4220	Clinical Practicum III	6

First Term		Hours
ENGL 1110	College Composition I	3
HEAL 1800	Medical Terminology	3
MATH 1320	College Algebra	3
PSY 1010	Principles Of Psychology	3
Elective		3
<b>Hours</b>		<b>15</b>

Second Term		Hours
ENGL 2950	Technical Writing	3
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
PHIL 1020	Critical Thinking	3
COMM 2840	Interpersonal Communication	3
Elective		2
<b>Hours</b>		<b>15</b>

Third Term		Hours
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 3800	Death And Dying	3
MATH 2600	Introduction To Statistics	3
U.S. Diversity		3
Social Sciences Core		3
<b>Hours</b>		<b>16</b>

Fourth Term		Hours
RDON 1010	Introduction to Radiation Therapy	3
PHIL 3370	Medical Ethics	3
EXSC 2580	Human Pathophysiology For Health Care	3
PHYS 1750	Introduction To Physics	4
Non-U.S. Diversity		3
<b>Hours</b>		<b>16</b>

Fifth Term		Hours
RDON 3100	Radiation Therapy Physics I	3
RDON 3110	Sectional Anatomy	3
RDON 3120	Patient Care Management	3
RDON 3130	Principles & Practice of Radiation Therapy I	3

RDON 3140	Imaging and Processing in Radiation Oncology	3
RDON 3150	Imaging and Processing Lab	1
<b>Hours</b>		<b>16</b>
<b>Sixth Term</b>		
RDON 3200	Radiation Therapy Physics II	3
RDON 3210	Introduction to Clinical Practicum	5
RDON 3230	Principles & Practice of Radiation Therapy II	3
RDON 3240	Principles & Practices of Radiation Therapy II Lab	1
<b>Hours</b>		<b>12</b>
<b>Seventh Term</b>		
RDON 3300	Clinical Practicum I	7
<b>Hours</b>		<b>7</b>
<b>Eighth Term</b>		
RDON 4160	Radiation Biology for Radiation Therapy	3
RDON 4110	Dosimetry	3
RDON 4120	Dosimetry Lab	1
RDON 4130	Clinical Practicum II	6
<b>Hours</b>		<b>13</b>
<b>Ninth Term</b>		
RDON 4200	Quality Assurance & Operational Issues	3
RDON 4210	Senior Seminar in Radiation Therapy	3
RDON 4220	Clinical Practicum III	6
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>122</b>

Requirements for the pre-clinical courses:

- 6 credit hours of English
- 3 credit hours of Math
- 6 credit hours of Social Science
- 6 credit hours of Natural Science including 1 lab
- 9 credit hours of electives from Core Curriculum Course list
- 3 credits US culture
- 3 credits Non-US Culture/Diversity
- Students will prepare and present case studies.
- Student will exhibit proficient written communication skills.
- Students will utilize critical thinking to solve a given problem.
- Students will demonstrate the ability to recognize correct treatment field positioning.
- Students will display professional behavior in the clinic setting.
- Students will develop a professional career plan.
- Students will demonstrate patient safety skills in the clinic.
- Students will effectively utilize radiation safety practices.

## College of Natural Sciences and Mathematics

### undergraduate CATALOG 2024-2025

Wolfe Hall, Room 2246  
419.530.7840

### Mission Statement

We improve the human condition by providing our students with a world-class education, fostering research and discovery, engaging with our community, and advancing science, mathematics, and technology. Through this, we are preparing students for a rich and rewarding career in an increasingly complex and changing world.

### Contacts

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## Programs and Centers

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#### Ritter Planetarium

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Ritter Planetarium

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## Degrees Offered

- Department of Biological Sciences (p. 374)
  - BA in Biology (p. 377)
  - BS in Biology (p. 380)
  - BS in Medical Laboratory Science (p. 386)
  - BS in Neuroscience (p. 387)
  - Minor in Biology (p. 389)
- Department of Chemistry & Biochemistry (p. 389)
  - BS in Biochemistry (p. 396)
  - BS in Chemistry (p. 398)
  - Minor in Chemistry (p. 402)
  - Minor in Green Chemistry & Engineering (p. 402)
  - Certificate in Analytical Chemistry (p. 402)
  - Certificate in Materials Chemistry (p. 403)
- Department of Environmental Sciences (p. 403)
  - BA in Environmental Studies (p. 409)
  - BS in Environmental Sciences (p. 413)
  - BS in Biology with a Concentration in Ecology and Organismal Biology (p. 411)
  - Minor in Environmental Sciences (p. 415)
  - Minor in Environmental Biology (p. 415)
  - Minor in Geology (p. 416)
- Department of Mathematics and Statistics (p. 417)
  - BS in Mathematics (p. 424)
  - Minor in Mathematics (p. 437)
- Department of Physics and Astronomy (p. 437)
  - BA in Astronomy (p. 442)
  - BS in Physics (p. 444)
  - Minor in Astrophysics (p. 450)
  - Minor in Physics (p. 450)
  - Minor in Renewable Energy (p. 451)
- BS in Data Science (p. 367)
- BS in Interdisciplinary Science (p. 372)
- Materials Science Certificate (p. 373)
- Semiconductors Certificate (p. 373)

## Accreditation

The College of Natural Sciences and Mathematics' Bachelor of Science in Medical Laboratory Sciences program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). In addition, the Bachelor of Science in Chemistry and the Bachelor of Science in Biochemistry are certified by the American Chemical Society (ASC).

## Admission Policies

### New first-year students:

Applying test-optional: 2.75 GPA

Applying with test scores: 2.75 GPA or 21 ACT/1060 SAT

Students not meeting these requirements will be admitted to the Department of Exploratory Studies.

### Change of College

Students in good standing (i.e. with a cumulative UT GPA of 2.0 or higher) who wish to change from another college at The University of Toledo to the College of Natural Sciences and Mathematics should make an appointment with a college advisor in the NSM Advising Office to discuss their change of college and have their academic records reviewed.

All requirements, including core, major and related requirements, must be fulfilled as specified in the catalog for the year in which the student enters the College of Natural Sciences and Mathematics. Credit restrictions and level requirements for Natural Sciences and Mathematics students will apply.

### Change of Catalog Year

In some circumstances, students can benefit from program modifications to expedite graduation progress, and may change to the current catalog year from the catalog year under which they were admitted. Important to note, once a catalog year term is updated students may not revert back to previous catalog year term. Interested students should meet with their academic advisor to request a change to the new catalog year.

### Admission with Transfer Credit from Another Institution

No more than 90-94, depending on the specific degree, of semester hours of credit earned at other institutions may apply toward a degree in the College of Natural Sciences and Mathematics. Course work from other institutions is accepted at the level the equivalent course is taught at The University of Toledo. Students with transfer credit are generally expected to fulfill all University and College course requirements for a degree in the College of Natural Sciences and Mathematics as specified in the catalog for the year in which they enter the College of Natural Sciences and Mathematics. In some cases, not all the credits that transfer into The University of Toledo will apply toward a degree in the College of Natural Sciences and Mathematics, e.g., developmental courses. Transfers from other institutions shall take at least 30 semester hours at The University of Toledo, including 12 semester hours of work in their major field and 9 semester hours in their minor field, regardless of the number of hours transferred.

Students transferring to the University of Toledo in Spring 2007 or later, including transfer readmits, must meet minimum GPA requirements in their Natural Sciences and Mathematics majors and minors with both:

1. the grades of all courses attempted at UToledo and
2. in a second calculation, the grades of all courses attempted at all institutions (including UToledo).

The grades of all courses (from all institutions) which are used by those students to satisfy UToledo Core requirements must be used in the calculation of the UToledo General Education GPA.

UToledo students who attend other institutions as guests or transient students must also meet minimum GPA requirements in their Natural Sciences and Mathematics majors and minors with:

1. the grades of all courses attempted at UToledo and
2. in a second calculation, the grades of all courses attempted at all institutions (including UToledo).

The grades of all courses (from all institutions) which are used by those students to satisfy UToledo Core requirements must be used in the calculation of the UToledo General Education GPA.

For the purposes of meeting minimum cumulative GPA's in a student's Natural Sciences and Mathematics major(s) and/or minor(s) and the UT Core, the grades of all courses attempted at all institutions will be included in the GPA calculation(s). Consult a college staff advisor if you have questions.

An applicant who has undertaken courses at a regionally accredited college or university and who submits through the Office of Undergraduate Admission for Adult, Transfer and Military Students an official transcript listing courses and grades and giving evidence of good standing will be admitted to the College of Natural Sciences and Mathematics, provided the student has maintained a minimum GPA of 2.0 on a 4.0 scale.

If the college from which the applicant transfers lacks proper accreditation, the student may be denied transfer credit on the basis of the transcript, but may be allowed to obtain credit by passing advanced standing examinations with at least a C grade. Official transcripts of records from all schools previously attended must be on file with the Office of Undergraduate Admission for Adult, Transfer and Military Students before the student will be permitted to register.

### A Second Degree at The University of Toledo

*A Second Degree within the College of Natural Sciences and Mathematics:*

A student earning a degree at The University of Toledo in the College of Natural Sciences and Mathematics may simultaneously earn a second degree in a different department within the College of Natural Sciences and Mathematics (NSM) by completing the requirements of both degrees. General education courses that meet the requirements of both degrees will count for both. The two degrees must be of a different type (e.g. – BS and BA) and both must be offered by NSM. A student who has previously earned a BA degree in the College of Natural Sciences and Mathematics may return to complete a BS degree in the same major by fulfilling the major and related field requirements for the BS degree as described in the catalog for the year of readmission. A student who previously earned either a BA or BS degree in the College of Natural Sciences and Mathematics may return to complete either a BA or BS in a different department by fulfilling the NSM college, major and related field requirements for the degree and major desired, as described in the catalog for the year of readmission. General education courses and NSM college requirements will count for both degrees.. Courses in the Related

Area of the first major may count towards the second major unless other related courses are required.

*A Second Major within a Bachelor of Science or Bachelor of Arts degree in the College of Natural Sciences and Mathematics:*

A student earning a Bachelor of Science or a Bachelor of Arts in the College of Natural Sciences and Mathematics may simultaneously earn a second major in a different department by completing the requirements of both majors as specified for the same degree program (BA or BS). Courses in the Related Area of the first major may count towards the second major unless other related courses are required. It is important to understand that completing this pathway will result in the achievement of a single degree, but with dual majors, from the College of Natural Sciences and Mathematics. All requirements for both majors must be completed in the same graduation term.

*A Second Degree in the College of Natural Sciences and Mathematics at The University of Toledo:*

A student earning a degree in another College at The University of Toledo may earn a second degree simultaneously in the College of Natural Sciences and Mathematics through the completion of all requirements of both degrees. A student who previously earned a degree in another College at the University of Toledo [or elsewhere] may earn a second degree in the College of Natural Sciences and Mathematics through the completion of all requirements of the College of Natural Sciences and Mathematics degree. General education courses and NSM college requirements will count for both degrees.

## Requirements for Students with an Associate's Degree

Students holding an Associate of arts or Associate of science degree from an accredited college are encouraged to enroll in the College of Natural Sciences and Mathematics and, in many instances, may expect to earn an appropriate baccalaureate upon completion of two years of full-time study. Students with an Associate's degree in a technical program will likely require more time to complete a bachelor's degree. The following regulations apply:

- Students must complete the equivalent of the specified University and college core and distributive requirements for a bachelor's degree.
- In all baccalaureate programs, a minimum of 64 hours must be taken at the 2000 to 4000 levels; of these, a minimum of 32 hours must be taken at the 3000 to 4000 levels in baccalaureate degree - granting colleges. Course work from other institutions is accepted at the level the equivalent course is taught at The University of Toledo.
- Students may enroll in any departmental, interdepartmental or interdisciplinary program for which they meet the admission criteria. All of the usual major and related area requirements must be fulfilled as specified in the catalog for the year in which the student entered the College of Natural Sciences and Mathematics.

## Readmission

Refer to policy and procedure for Readmission to the College of Natural Sciences and Mathematics on the Undergraduate Policies and Procedures page <https://www.utoledo.edu/nsm/policies-procedures.html#readmission>.

Students who readmit after more than 12 consecutive months' absence must comply with existing college requirements at the time of readmission.

## Academic Policies

Refer to UToledo Policy website (<http://www.utoledo.edu/policies/>) for academic policies that apply to all students.

## NSM Undergraduate Advising and Advisors

### Academic Advising

Academic advising is a process intended to help students derive as many benefits as possible from their educations. This occurs when advisors help students develop and reach academic and career goals. While the ultimate responsibility for making personal and educational decisions rests with the student, advisors assist by helping to identify and assess alternatives and the consequences of decisions. Advising can be much more than selecting courses. The more frequently students arrange to meet with their advisors, the better their needs can be served. New first year students, new transfer students, students changing colleges, and continuing Interdisciplinary Science students are advised in the NSM Advising Office by college staff advisors. See the NSM Advising Office (<http://www.utoledo.edu/nsm/advising/>) web page for more information. They:

- provide essential information;
- help students select courses to meet University General Education and college skill area and distributive requirements;
- suggest courses for the exploration of majors and minors; and
- help students evaluate academic progress and adjustment to university life.

### NSM Faculty Advising/Advisors

Students with declared majors and/or minors are advised by departmental major or program advisors, faculty who provide general information as well as more specialized information about majors and minor programs, departmental course offerings, and career and graduate opportunities. They help students select courses for general, major, related, and other requirements. Students seeking more than one major or degree, a minor, or admission to professional school should meet periodically with one or more additional advisors. A complete list of academic advisors is available on the NSM Current Students (<https://www.utoledo.edu/nsm/current.html#departments>) web page (<https://www.utoledo.edu/nsm/current.html#departments>).

## Student Responsibilities

Students are responsible for correctly selecting courses for their programs of study each semester and for fulfilling all degree requirements. Although advisors will assist wherever possible, the final responsibility rests with the student. Students are expected to make sure that they are fulfilling all degree requirements, as published in the issue of the catalog of the College Natural Sciences and Mathematics under which they entered. Students who have been out of the College of Natural

Sciences and Mathematics for 12 consecutive months are responsible for the requirements in the University catalog under which they reenter.

## Transcripts and Degree Audit Reports

A transcript is a complete chronological list of a student's academic course work (including all courses attempted and grades earned). It does not show how specific courses apply or do not apply to University and college requirements as stipulated in this catalog. For example, developmental, non-repeatable and certain other courses are not counted toward minimum credits for degrees, but appear on transcripts. The Degree Audit Report (DAR) details all requirements applicable to a student's academic program (degree, major, minor) and applies the student's courses on the transcript (including transfer credit) to those requirements. The DAR should be used to identify requirements remaining when all registered courses are completed. Students may view their transcript and DAR through the myUT (<http://myut.utoledo.edu>) portal with Student Self-Service.

## Declaring or Changing a Major or Minor

To declare a major or minor or change one previously declared within the College of Natural Sciences and Mathematics, students email NSM Advising ([nsmadvising@utoledo.edu](mailto:nsmadvising@utoledo.edu)) ([nsmadvising@utoledo.edu](mailto:nsmadvising@utoledo.edu)).

## Sequence of Courses

There is no single prescribed sequence of courses, except that all first-year students should take NSM 1000 and any courses required on the basis of placement testing and/or high school deficiencies. Students should consult the later sections of the catalog devoted to programs of study and course offerings, and they should review their programs with their academic advisors to ensure they complete courses in the proper sequences. In addition, students should use their Degree Audit Reports to track their progress.

Course prerequisites and corequisites, along with the minimum grade requirements to progress through sequential courses can be found in the Undergraduate Course Descriptions section of the catalog.

## Study Abroad

Students who plan to study abroad must be sure that their proposed course of study is properly accredited. Students should ascertain in advance from the Education Abroad Office whether the course work will count toward their general requirements, majors, or related areas or only be regarded as electives. Information about study abroad programs is generally available from advisors in many college programs and departments and from the Center for International Studies and Programs (Education Abroad Office) (<http://www.utoledo.edu/cisp/>).

## GPA Recalculation for Repeated Courses

The College of Natural Sciences and Mathematics permits a maximum of 18 semester hours of course work to be excluded from the UToledo GPA calculation. Students who have had their GPAs recomputed under the Academic Forgiveness Policy are not eligible for grade deletions. Criteria governing this policy are given in the Undergraduate Policy 3364-71-07: GPA Recalculation: <https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-07%20%20Repeating%20a%20course%20and%20recalculation%20of%20GPA.pdf>. Students should

check with the NSM Advising Office for more specific information on this policy. Students may not use repeat courses taken at other institutions to qualify for a GPA recalculation.

## Academic STANDING

Academic standing in the College of Natural Sciences and Mathematics is determined by the University Academic Standing policy <https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-01%20Academic%20standing.pdf> and procedures <https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-01-1%20Academic%20standing%20procedure.pdf>. The College of Natural Sciences and Mathematics does not have additional requirements for minimum academic performance under this policy and procedures beyond the University wide requirements.

## Academic Grievance

A student has the responsibility and right to call to the attention of an instructor any grade that the student believes to be in error or unfair. A student may appeal the decision of the instructor, in order, to the department Chair, the Associate Dean, then to the college appeals committee if the problem is not resolved. If the problem is not resolved at the college level, the student may appeal to the student grievance council. (See also the Academic Grievance section of the Policies and Procedures of the College of Natural Sciences and Mathematics 3364-71-05 at <https://www.utoledo.edu/nsm/policies-procedures.html#academicgrievance> for more information on the steps and timeline of the appeals process within the College, prior to the petitioning the Student Grievance Council). If a student chooses to appeal to the university level Student Grievance Council the student file the appeal no later than the last day of classes of the semester (including summers) following the one in which the grievance arose. The procedures for making an appeal to the student grievance council may be found on the Provosts Website: <http://www.utoledo.edu/offices/provost/academicgrievance/>.

## Statement on Academic Dishonesty

A student found to be academically dishonest by a faculty member may appeal, in order, to the department Chair, the Dean, the college appeals committee and the University student grievance council. The procedures for making an appeal to the student grievance council, as outlined for academic grievance in the previous section. Criteria governing this policy are detailed in undergraduate policy 3364-71-04: Academic Dishonesty: <http://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-04%20%20Academic%20dishonesty.pdf>.

## College Level Examination Program (CLEP)

The College of Natural Sciences and Mathematics will accept a maximum of 21 semester hours of CLEP through successful completion of the four general examinations. Additional credit may be earned through satisfactory scores on individual subject examinations. Refer to the University of Toledo Registrar's CLEP Credit web page [https://www.utoledo.edu/offices/registrar/student\\_records/clep-exams.html](https://www.utoledo.edu/offices/registrar/student_records/clep-exams.html) for specific information on minimum scores needed to award UT Credit and specific credit awarded.

## Advanced Placement Program

Refer to the University of Toledo Registrar's web page ([http://www.utoledo.edu/offices/registrar/student\\_records/advan\\_credits.html](http://www.utoledo.edu/offices/registrar/student_records/advan_credits.html)) for specific information on minimum scores and credits awarded for Advanced Placement examinations administered by the College Board Advanced Placement Program.

## Pass/No Credit Option

Students may elect to enroll in certain undergraduate courses for Pass/No Credit rather than an A-F grade. Students must complete a petition to take a class Pass/No Credit and obtain the approval of their college before the withdrawal date for the part of term. Grades of C or better will be changed to PS, and grades of C-, D+, D, D-, and F will be changed to NC. The grades of PS and NC do not affect the grade point average. Refer to programs of study (p. 361) in the College of Natural Sciences and Mathematics section of this catalog for the limitations on pass/no credit grading in effect for different majors and minors. Undeclared students, as a general rule, should not elect pass/no credit grading in major-level courses.

## Field Experience/Internship

Policies and procedures for incorporating field experiences or internships in academic programs vary by major. Some majors require a field experience or internship; for other majors, they are optional. Students should seek information from their major departments and obtain advance approval for all field experiences or internships.

## Degree Requirements

The College of Natural Sciences and Mathematics offers both Bachelor of Arts and Bachelor of Science degrees. Requirements differ based on degree as indicated below.

### A. Grade Point Averages

A cumulative grade point average (GPA) reflects all grades earned, including grades of F and grades in repeated courses. Candidates must earn a minimum overall cumulative GPA of C (that is, a 2.0 GPA on a 4.0 scale) for all UToledo course work. In addition, candidates must earn a minimum cumulative GPA of C in the major, minors (optional) and UT General Education, with the grades of all courses attempted at all institutions included in the GPA calculation. Some programs require a higher GPA in the major. For example, BS Chemistry and BS Biochemistry require a 2.5 GPA.

### B. Residency Requirement

Students transferring from other institutions must earn at least 30 hours of credit at The University of Toledo; at least 12 of these must be in the major area, and for students pursuing a minor, at least 9 hours must be earned at The University of Toledo. Policy Name: 3364-71-10 Residency requirement for a degree (<https://nam04.safelinks.protection.outlook.com?url=https%3A%2F%2Fwww.utoledo.edu%2Fpolicies%2Facademic%2Fundergraduate%2Fpdfs%2F3364-71-10%2520%2520Residency%2520requirement%2520for%2520a%2520degree.pdf&data=05%7C01%7CCathy.Zimmer%40utoledo.edu%7Cc009cb29b62c4971f76e08dab8ff2476%7C1d6b1707baa94a3da8f8deabfb3d467b>)

%7C0%7C0%7C638025703211082552%7CUnknown  
%7CTWFpbGZsb3d8eyJWljoImC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6Ikt1haWwiLC  
%7C3000%7C%7C  
%7C&sdata=HBvKVxBAGQC5jHyDdy2wRVfzqlsqyKiTFqeodJ61UQ  
%3D&reserved=0)

### C. Credit Hours and Levels

1. Students must complete a minimum of 120 hours of course work that must include the University General Education and college course requirements, and either major and course work related to the major, or an interdisciplinary program. Individual programs may require more than 120 hours of coursework to complete.
2. In all baccalaureate programs, a minimum of 60 hours must be taken at the 2000 to 4000 levels; of these a minimum of 30 hours must be taken at the 3000 to 4000 levels.
3. Students are cautioned to make use of their degree audit and review remaining requirements with their advisor before every registration in order to make progress toward completion of their requirements in an orderly, timely manner. Insofar as a student can complete the basic courses and the courses required for a chosen major (as outlined in sections E - I below) in fewer than the 120 hours required for a degree, the student must choose elective courses to complete the total of 120 hours, subject to the restrictions outlined below.

### D. Credit Restrictions

Total earned hours shown on a student's transcript may not all be applicable to the minimum 120 credits required for a degree, as follows:

1. Students with entrance deficiencies in mathematics and other students who are required or choose to take developmental course work will need to complete additional hours.
2. No courses in typing, shorthand or keyboarding will apply toward the degree.
3. No more than two hours in skill courses in physical education or recreation courses at the 1000 level will apply toward the degree.
4. No more than two hours in Student Leadership Development I and II will apply toward the degree.
5. Duplicate credit – except for courses identified as repeatable courses, students will not receive credit for repeated courses (taking the same course twice), whether taken at The University of Toledo or elsewhere.
6. The college reserves the right to deny credit for other specific courses (including most SKLS courses) and for blanket technical credit not applicable to a student's specific program.

### E. University General Education Requirements

Students earning baccalaureates in all colleges and programs are required to complete a minimum of 36 credit hours of courses that comprise the General Education Curriculum. Those courses are distributed in the areas of English composition, humanities/fine arts, social sciences, natural sciences, mathematics, and multicultural studies courses. Students should view their Degree Audit Report or contact their academic department or college office for specific details.

Students are placed into mathematics courses by ACT scores or placement tests in those subjects. Students are placed into foreign language courses through placement testing. With careful planning, students will be able to satisfy UT General Education Curriculum and College of Natural Sciences and Mathematics requirements by taking the minimum required hours.

## F. Natural Sciences and Mathematics Skill Area Requirements

Code	Title	Hours
<b>1. Orientation</b>		
NSM 1000	Natural Sciences & Mathematics <sup>1</sup>	2
<b>2. Writing Across the Curriculum (WAC) Requirement</b>		
Select one writing intensive course (WAC) as specified by the program of study or approved by the advisor if the program of study does not specify a given WAC course. <sup>2</sup>		2-4

<sup>1</sup> All new first-year students are required to take NSM 1000. The course is optional for transfer students.

<sup>2</sup> Students must pass a minimum of one writing intensive course as specified by the program or approved by their advisor. Many courses will require completion of Composition I and II as pre-requisites.

## G. Major Area

Every student must complete either a departmental major or an interdisciplinary major. Courses given in other colleges of the University may be credited to the major only with the approval of the Dean of the College of Natural Sciences and Mathematics upon recommendation of the department Chair. Waiver of a required course or the substitution of a course from another department does not necessarily reduce the minimum credits required in the major.

### 1. Departmental Major

- See the complete list of departmental majors under “Degrees Offered” in the College of Natural Sciences and Mathematics section of this catalog.
- A student may have two majors from two different departments provided the requirements of both programs are satisfied. Work in the second major may be accepted as fulfilling the related course requirement upon the approval of the advisors in both departments. A student cannot use courses from the first major to satisfy the second and vice-versa. See section on “Earning a Second Degree (p. 362)” for statement on requirements when two or more desired major programs are offered as different degrees.

### 2. Interdisciplinary Majors

- The College of Natural Sciences and Mathematics offers interdisciplinary majors in Data Science (p. 367) and Interdisciplinary Science (p. 372). A student completing a departmental major and a second major in an interdisciplinary or interdepartmental major cannot use courses from the first major to satisfy the second or vice-versa. See the complete list of interdisciplinary majors under “Degrees Offered” in the College of Natural Sciences and Mathematics section of this catalog.

## H. Related Courses

Students in some majors also must complete courses related to the major. These courses must be in addition to courses taken to fulfill the basic requirements listed above. Each department defines the areas from which courses may be chosen by its majors, and these listings are given in the later sections of this catalog under Programs of Study. For most programs, related courses must be chosen from courses acceptable for credit in a College of Natural Sciences and Mathematics major. Generally, these are upper-level courses.

Courses given in other colleges of the University may be credited to the major or to related courses only if indicated in later sections of the this catalog under Programs of Study or with the approval of the College of Natural Sciences and Mathematics.

## I. Minors

Many College of Natural Sciences and Mathematics departments offer minors. Departmental requirements for particular minors are given in later sections of the catalog under Programs of Study. Students wishing to pursue minors should consult with their primary program advisor and then with an advisor in NSM Advising office. Not all minors can be added to all degree programs. Courses selected for the minor must be chosen from courses acceptable for credit toward a major in that department. In meeting requirements for some majors, work in the minor may be accepted as fulfilling the required hours of related courses, but only with the approval of the student’s major advisor. Students completing a minor must be sure that at least 12 credit hours of the minor requirements are unique to that minor, and are not being used to satisfy requirements in the major or another minor. A minimum GPA of 2.0 is required in the minor. At least nine of those hours must be completed at The University of Toledo.

## Honors

Honors in the College of Natural Sciences and Mathematics is available to its academically talented and highly motivated students, and is offered in conjunction with the University of Toledo Jesup Scott Honors College. To graduate with College Honors, a minimum of 27 hours of Honors credits, a minimum cumulative UToledo GPA of 3.3, and completion of departmental or interdisciplinary program specific requirements for Honors in one of the departments or interdisciplinary programs of NSM are required. Departmental honors alone can be earned by completing the Departmental Honors requirements alone. The departmental honors requirements and curriculum offered by individual departments within the College of Natural Sciences and Mathematics is described under the departmental entries in this catalog.

## Student Selection and Admission Criteria

Admission to the Honors College is competitive and limited to academically talented students. Students entering directly from high school are admitted based on a review of application materials, which include a high school transcript, a reference, an essay, and an extracurricular resume. Motivated students a minimum high school GPA of 3.5 are encouraged to apply. Currently enrolled University of Toledo students and transfer students may apply for admission to the Honors College if they have completed at approximately 15 but not more than 60

graded semester hours of college work, and earned a minimum GPA of 3.3 (on a 4.0 scale).

## Program Requirements

In order to graduate with the Honors College diploma, a student must:

- Complete all requirements for an approved degree program within the College of Natural Sciences and Mathematics.
- Complete a minimum of 27 semester hours of honors courses. Honors courses are of two kinds – those offered by the Honors College and those offered by various departments and colleges. Of the 27 hours required, the following must be completed by all Honors College students:

Code	Title	Hours
Three semester hours of Honors Reading Conference:		3
HON 1010	Ideas and Society	
A minimum of three semester hours of the following:		3
HON 2010	Multicultural Toledo	
HON 2020	Multicultural Literatures: The North American Experience-Honors-WAC	
HON 2030	Multicultural Literatures: The Non-European World-Honors-WAC	
A minimum of three semester hours of the following:		3
HON 3010	Community Engagement	
HON 4950	Honors Seminar	
HON 4960	Honors Seminar	

All requirements for departmental or interdisciplinary honors in their major. This includes the completion of an honors thesis or project supervised by a faculty member in the major department.

- Earn a minimum overall GPA of 3.3

Note: For a student pursuing more than one major, or an interdepartmental major, the Honors College's departmental honors requirement may be fulfilled through meeting requirements for one of the majors.

## Retention Standards

To remain in good standing in the Honors College, a student must:

- Earn a minimum overall GPA of:
  - 3.0 by the end of the first year (typically at least 30 semester hours);
  - 3.1 by the end of the second year (typically at least 60 semester hours); and
  - 3.2 by the end of the third year (typically at least 90 semester hours).
- Make satisfactory progress toward fulfillment of the requirements for a degree with honors in the college.

## Departmental Honors

Requirements for departmental honors designations are set by the various departments of the College of Natural Sciences and Mathematics and are described under the departmental entries in this catalog. All departments, however, require successful completion of an honors

thesis or project supervised by a faculty member in that department. It is possible for a student to fulfill all departmental requirements and earn the departmental honors citation upon graduation without participating in the Honors College. The reverse is not possible, however, as departmental honors is required to earn the Honors College diploma. Interdisciplinary majors are not eligible for stand-alone Departmental Honors recognition, and must be aligned with the Jesup Scott Honors College designation.

## BS in Data Science

The B.S. in Data Science is an interdisciplinary program that requires a minimum of 120 hours of coursework and is designed to provide the combination of programming skills, mathematical and statistical expertise, and experience working with big data that is needed for a successful career in data science. The program includes 17-20 credit hours of study in a specific area of concentration that includes working with and applying the results of the data analysis to solving real world problems. Students may choose to concentrate in public health data, astrophysics data, or environmental science data; minors in geographic information science and technology, economics, computer science and engineering or physics also constitute concentrations; students interested in other areas should consult with their advisor. Students interested in a concentration in mathematics or statistics should choose the BS in Mathematics with a Concentration in Data Science as their preferred program of study.

Questions regarding the program should be directed to Bill Kalies (william.kalies@utoledo.edu), Interdisciplinary Data Science Program Director and program advisor

### Data Science-Astrophysics Concentration, BS

Code	Title	Hours
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
MATH 2850	Elementary Multivariable Calculus	4
MATH 1890	Elementary Linear Algebra	3
MATH 3610	Statistical Methods I	3
MATH 3620	Statistical Methods II	3
MATH 4680	Introduction To Theory Of Probability	3
MATH 4690	Introduction To Mathematical Statistics	3
CSET 1100	Introduction to Computer Science and Engineering Technology	4
CSET 3300	Database-Driven Web Sites	4
EECS 1030	Introduction to Computer Science and Engineering	3
EECS 1510	Introduction To Object Oriented Programming	4
EECS 4750	Machine Learning	3
HHS 2500	Data Science I	3
HHS 4500	Data Science II	3
GEPL 4110	Geographic Information Systems	3
or EEES 4480	GIS Applications in ENSC	
ECON 3810	Applied Econometrics	3
or ECON 4810	Econometrics Models And Methods I	
ART 2800	Visual Literacy-Data Visualization	3
PHIL 3160	Data Science Ethics	3

Code	Title	Hours
<b>Concentration in Astrophysics Data</b>		
ASTR 2020	Stars, Galaxies, And The Universe	3
ASTR 3880	Foundations of Astronomy	4
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
PHYS 3310	Modern Physics I	3

### Data Science-Environmental Data Concentration, BS

Code	Title	Hours
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
MATH 2850	Elementary Multivariable Calculus	4
MATH 1890	Elementary Linear Algebra	3
MATH 3610	Statistical Methods I	3
MATH 3620	Statistical Methods II	3
MATH 4680	Introduction To Theory Of Probability	3
MATH 4690	Introduction To Mathematical Statistics	3
CSET 1100	Introduction to Computer Science and Engineering Technology	4
CSET 3300	Database-Driven Web Sites	4
EECS 1030	Introduction to Computer Science and Engineering	3
EECS 1510	Introduction To Object Oriented Programming	4
EECS 4750	Machine Learning	3
HHS 2500	Data Science I	3
HHS 4500	Data Science II	3
GEPL 4110	Geographic Information Systems	3
or EEES 4480	GIS Applications in ENSC	
ECON 3810	Applied Econometrics	3
or ECON 4810	Econometrics Models And Methods I	
ART 2800	Visual Literacy-Data Visualization	3
PHIL 3160	Data Science Ethics	3

Code	Title	Hours
<b>Concentration in environmental data</b>		
EEES 2020	Introduction to the Environment: Energy and Climate	3
EEES 2030	Introduction to the Environment Land-Use and Water	3
or EEES 2200	Climate Change	
Select one of the following course combinations:		
EEES 2100 & EEES 1020	Fundamentals Of Geology and Introductory Geology Laboratory	
EEES 3050 & EEES 3060	General Ecology and General Ecology Laboratory	
EEES 4160	Environmental Data Management	3
EEES 4490	Remote Sensing of The Environment	4

### Data Science-Individualized Concentration, BS

Code	Title	Hours
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
MATH 2850	Elementary Multivariable Calculus	4
MATH 1890	Elementary Linear Algebra	3
MATH 3610	Statistical Methods I	3
MATH 3620	Statistical Methods II	3
MATH 4680	Introduction To Theory Of Probability	3
MATH 4690	Introduction To Mathematical Statistics	3
CSET 1100	Introduction to Computer Science and Engineering Technology	4
CSET 3300	Database-Driven Web Sites	4
EECS 1030	Introduction to Computer Science and Engineering	3
EECS 1510	Introduction To Object Oriented Programming	4
EECS 4750	Machine Learning	3
HHS 2500	Data Science I	3
HHS 4500	Data Science II	3
GEPL 4110	Geographic Information Systems	3
or EEES 4480	GIS Applications in ENSC	
ECON 3810	Applied Econometrics	3
or ECON 4810	Econometrics Models And Methods I	
ART 2800	Visual Literacy-Data Visualization	3
PHIL 3160	Data Science Ethics	3

In addition, in an areas of study where an existing concentration in the data science major is not available, a related minor can be selected in consultation with the student's academic advisor and the approval of the Data Analytics/Data Science Program Oversight Committee to fulfill the concentration requirement of the degree. For minors that are less than 18 credits, additional courses to equal at least 18 credits in the same discipline as the minor must be included. Courses selected within the minor must include at least two courses that focus on the collection, management and/or analysis of data in the minor. The following minors are already approved as meeting this requirement:

Minor in Geographic Information Science and Technology  
 Minor in Economics  
 Minor in Computer Science and Engineering  
 Minor in Physics

Students interested in a concentration in mathematics or statistics should choose the BS in Mathematics with a Concentration in Data Science as their preferred program of study.

### Data Science-Public Health Data Concentration, BS

Code	Title	Hours
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
MATH 2850	Elementary Multivariable Calculus	4
MATH 1890	Elementary Linear Algebra	3
MATH 3610	Statistical Methods I	3
MATH 3620	Statistical Methods II	3



MATH 4680	Introduction To Theory Of Probability	3
MATH 4690	Introduction To Mathematical Statistics	3
CSET 1100	Introduction to Computer Science and Engineering Technology	4
CSET 3300	Database-Driven Web Sites	4
EECS 1030	Introduction to Computer Science and Engineering	3
EECS 1510	Introduction To Object Oriented Programming	4
EECS 4750	Machine Learning	3
HHS 2500	Data Science I	3
HHS 4500	Data Science II	3
GEPL 4110 or EEES 4480	Geographic Information Systems GIS Applications in ENSC	3
ECON 3810 or ECON 4810	Applied Econometrics Econometrics Models And Methods I	3
ART 2800	Visual Literacy-Data Visualization	3
PHIL 3160	Data Science Ethics	3

Code	Title	Hours
Concentration in public health		
HEAL 2750	Introduction to Epidemiology	3
HEAL 2700	Introduction to Public Health	3
HEAL 3000	Global Health	3
HEAL 3500	Environmental Health	3
HEAL 3600	Prevention And Control Of Disease	3
HEAL 4800	Public Health Research And Statistics	3

### DATA SCIENCE-ASTROPHYSICS CONCENTRATION, BS

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
MATH 1850	Single Variable Calculus I	4
HHS 2500	Data Science I	3
ENGL 1110	College Composition I	3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>

Second Term		Hours
MATH 1860	Single Variable Calculus II	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
CSET 1100	Introduction to Computer Science and Engineering Technology	4
ASTR 2020	Stars, Galaxies, And The Universe	3
<b>Hours</b>		<b>14</b>

Third Term		Hours
MATH 2850	Elementary Multivariable Calculus	4
MATH 3610	Statistical Methods I	3
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1

EECS 1030	Introduction to Computer Science and Engineering	3
<b>Hours</b>		<b>15</b>

Fourth Term		Hours
MATH 1890	Elementary Linear Algebra	3
MATH 3620	Statistical Methods II	3
EECS 1510	Introduction To Object Oriented Programming	4
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
<b>Hours</b>		<b>15</b>

Fifth Term		Hours
MATH 4680	Introduction To Theory Of Probability	3
PHYS 3310	Modern Physics I	3
CSET 3300	Database-Driven Web Sites	4
Non#US Diversity (WAC)		3
Social Science Core		3
<b>Hours</b>		<b>16</b>

Sixth Term		Hours
MATH 4690	Introduction To Mathematical Statistics	3
PHIL 3160	Data Science Ethics	3
ASTR 3880	Foundations of Astronomy	4
Elective (WAC)		3
Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>

Seventh Term		Hours
GEPL 4110	Geographic Information Systems	3
ECON 4810	Econometrics Models And Methods I	3
Natural Sciences Core		3
ART 2800	Visual Literacy-Data Visualization	3
EECS 4750	Machine Learning	3
<b>Hours</b>		<b>15</b>

Eighth Term		Hours
HHS 4500	Data Science II	3
Social Sciences Core		3
US Diversity		3
Electives		5
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>120</b>

### DATA SCIENCE-ENVIRONMENTAL DATA CONCENTRATION, BS

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
MATH 1850	Single Variable Calculus I	4
HHS 2500	Data Science I	3



ENGL 1110	College Composition I	3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
<b>Second Term</b>		
MATH 1860	Single Variable Calculus II	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
CSET 1100	Introduction to Computer Science and Engineering Technology	4
Social Sciences Core		3
<b>Hours</b>		<b>14</b>
<b>Third Term</b>		
MATH 2850	Elementary Multivariable Calculus	4
MATH 3610	Statistical Methods I	3
EEES 2100	Fundamentals Of Geology	4
EECS 1030	Introduction to Computer Science and Engineering	3
EEES 1020	Introductory Geology Laboratory	1
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
MATH 1890	Elementary Linear Algebra	3
MATH 3620	Statistical Methods II	3
EECS 1510	Introduction To Object Oriented Programming	4
CSET 3300	Database-Driven Web Sites	4
EEES 2020	Introduction to the Environment: Energy and Climate	3
<b>Hours</b>		<b>17</b>
<b>Fifth Term</b>		
MATH 4680	Introduction To Theory Of Probability	3
EEES 2030	Introduction to the Environment Land-Use and Water	3
Social Sciences Core		3
Non#US Diversity (WAC)		3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
ART 2800	Visual Literacy-Data Visualization	3
MATH 4690	Introduction To Mathematical Statistics	3
PHIL 3160	Data Science Ethics	3
Elective (WAC)		3
Diversity of US		3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
GEPL 4110	Geographic Information Systems	3
ECON 4810	Econometrics Models And Methods I	3
EEES 4160	Environmental Data Management	3
EEES 4490	Remote Sensing of The Environment	4
EECS 4750	Machine Learning	3
<b>Hours</b>		<b>16</b>

**Eighth Term**

HHS 4500	Data Science II	3
Social Sciences Core		3
Elective		3
Natural Science Core		4
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>120</b>

**DATA SCIENCE-INDIVIDUALIZED CONCENTRATION, BS****First Year**

<b>First Term</b>		<b>Hours</b>
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
MATH 1850	Single Variable Calculus I	4
HHS 2500	Data Science I	3
ENGL 1110	College Composition I	3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>

**Second Term**

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1860	Single Variable Calculus II	4
CSET 1100	Introduction to Computer Science and Engineering Technology	4
Elective in Concentration/Minor requirement		3
<b>Hours</b>		<b>14</b>

**Second Year****Third Term**

ART 2800	Visual Literacy-Data Visualization	3
MATH 2850	Elementary Multivariable Calculus	4
MATH 3610	Statistical Methods I	3
EECS 1030	Introduction to Computer Science and Engineering	3
Elective		3
<b>Hours</b>		<b>16</b>

**Fourth Term**

MATH 1890	Elementary Linear Algebra	3
MATH 3620	Statistical Methods II	3
EECS 1510	Introduction To Object Oriented Programming	4
Natural Sciences Core and Natural Sciences Core Laboratory		4-5
<b>Hours</b>		<b>14-15</b>

**Third Year****Fifth Term**

MATH 4680	Introduction To Theory Of Probability	3
CSET 3300	Database-Driven Web Sites	4
Elective in Concentration/ Minor requirement		3
Non-Us Diversity (WAC)		3
Social Sciences Core		3
<b>Hours</b>		<b>16</b>

**Sixth Term**

MATH 4690	Introduction To Mathematical Statistics	3
PHIL 3160	Data Science Ethics	3
Elective in Concentration/ Minor requirement		3
Elective (WAC)		3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>

**Fourth Year**

**Seventh Term**

GEPL 4110	Geographic Information Systems	3
ECON 4810	Econometrics Models And Methods I	3
EECS 4750	Machine Learning	3
Natural Science Core		3
Elective in Concentration/ Minor requirement		3
<b>Hours</b>		<b>15</b>

**Eighth Term**

HHS 4500	Data Science II	3
Elective in Concentration/ Minor requirement		3
Social Science Core		3
US Diversity		3
Elective		3
<b>Hours</b>		<b>15</b>

**Total Hours 120-121**

**DATA SCIENCE-PUBLIC HEALTH DATA CONCENTRATION, BS**

**First Term**

**Hours**

NSM 1000	Foundations of Academic Success for Science and Math Majors	2
MATH 1850	Single Variable Calculus I	4
HHS 2500	Data Science I	3
ENGL 1110	College Composition I	3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>

**Second Term**

MATH 1860	Single Variable Calculus II	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
CSET 1100	Introduction to Computer Science and Engineering Technology	4
Social Sciences Core		3
<b>Hours</b>		<b>14</b>

**Third Term**

MATH 2850	Elementary Multivariable Calculus	4
MATH 3610	Statistical Methods I	3
Natural Sciences Core & Natural Sciences Core Laboratory		4-5
EECS 1030	Introduction to Computer Science and Engineering	3
<b>Hours</b>		<b>14-15</b>

**Fourth Term**

MATH 1890	Elementary Linear Algebra	3
MATH 3620	Statistical Methods II	3
EECS 1510	Introduction To Object Oriented Programming	4
CSET 3300	Database-Driven Web Sites	4
HEAL 2700	Introduction to Public Health	3
<b>Hours</b>		<b>17</b>

**Fifth Term**

MATH 4680	Introduction To Theory Of Probability	3
ART 2800	Visual Literacy-Data Visualization	3
HEAL 3000	Global Health	3
HEAL 2750	Introduction to Epidemiology	3
Non#US Diversity (WAC)		3
<b>Hours</b>		<b>15</b>

**Sixth Term**

MATH 4690	Introduction To Mathematical Statistics	3
PHIL 3160	Data Science Ethics	3
Diversity of US		3
HEAL 3500	Environmental Health	3
Elective		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

GEPL 4110	Geographic Information Systems	3
HEAL 3600	Prevention And Control Of Disease	3
ECON 4810	Econometrics Models And Methods I	3
EECS 4750	Machine Learning	3
Natural Sciences Core		3-4
<b>Hours</b>		<b>15-16</b>

**Eighth Term**

HHS 4500	Data Science II	3
HEAL 4800	Public Health Research And Statistics	3
Social Sciences Core		3
Arts/Humanities Core		3
Diversity of US		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>120-122</b>

- PLO 1. Students will be able to explain and apply mathematical, statistical and computational principles to different data types collected from natural phenomena and human activities.
- PLO 2. Students will construct databases from data sets, manipulate and use them to extract meaningful answers to questions of interest in the natural sciences, human health or wellbeing.
- PLO 3. Students will be able to select and apply the appropriate computational algorithms, statistical software packages, and programming skills that based on the evaluation of a specific date set and problem under investigation.
- PLO 4. Students will be able to describe current issues in a disciplinary area in the natural sciences, human health or wellbeing



that large data can provide insight into and apply the appropriate data analytics tools to their investigation.

- PLO 5. Students will describe and evaluate various social and ethical issues related to the collection, analysis and applications of data.
- PLO 6. Students will effectively communicate their work and results through written and/or oral presentations.

Honors in Data Science is available to students pursuing both a B.S. degree in Data Science and Honors through the Jesup Scott Honors College. To receive an undergraduate degree with Honors in Data Science, all requirements for the B.S. degree must be met, including at least 12 credit hours of Honors coursework in the major, with at least two Honors courses in the selected Data Science concentration. In addition, a project leading to a thesis under the direction of a research-active faculty member in the major or concentration in the major must be completed. Students are required to submit a written Honors Thesis to the program advisor before completion of their senior year.

#### **DATA 4910 Undergraduate Research in Data Science**

[1-3 credit hours]

Faculty directed research. Course may be repeated for credit with program permission.

**Term Offered:** Spring, Summer, Fall

#### **DATA 4940 Internship in Data Science**

[1-6 credit hours]

Experiential learning course in which students apply knowledge of data science through an approved internship experience in business, industry, government, or academia. Course may be repeated for credit with program permission.

**Term Offered:** Spring, Summer, Fall

#### **DATA 4980 Advanced Topics in Data Science**

[1-3 credit hours]

Advanced course for Data Science majors in a specialized topic. May be repeated for credit in different specialties.

**Term Offered:** Spring, Summer, Fall

## **BS in Interdisciplinary Science**

### **Degree Requirements**

The Interdisciplinary Science program has been established in recognition of the fact that existing majors may not satisfy the needs of all students desiring a scientific education. Interdisciplinary Science is a program that allows students to select an area of individualized concentration and related course work not offered in traditional majors. Students should declare this major before they have completed 90 hours. Students seeking admission to this program will be interviewed by an adviser in the NSM Advising Office and must have sound reasons for their choice. Once accepted into the program, students must have their programs approved by the Interdisciplinary Science advisor.

Under this program, the University and college general education requirements specified in the Degree Requirements section of this catalog must be fulfilled, and an individualized concentration in the natural sciences or mathematics must be identified for the purpose of determining education requirements. Students must take at least 64 hours of courses at the 2000 level or higher and at least 32 hours of

courses at the 3000/4000 level and have earned a minimum of 120 hours to be eligible for graduation.

Students must take at least 15 but not more than 34 hours of course work in a single department to serve as the core area and 16-35 hours of course work to serve as the cognate for a total of 50 hours. Students must meet a minimum GPA average of 2.0 in a GPA calculation of the core area as well as a secondary GPA calculation of the core area and the cognate.

Courses used for the core concentration and cognate must be courses that would count in the major in those departments.

<b>First Term</b>		<b>Hours</b>
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
ENGL 1110	College Composition I	3
	Natural Science Core	3
	Social Science Core	3
	Natural Sciences Core (Lab)	1
	Mathematics Core course <sup>1</sup>	3
<b>Hours</b>		<b>15</b>
<b>Second Term</b>		
ENGL 1130 or ENGL 2950	College Composition II: Academic Disciplines And Discourse or Technical Writing	3
	Mathematics course <sup>1</sup>	3
	Core Natural Science	3
	Core Social Science	3
	Arts/Humanities Core	3
<b>Hours</b>		<b>15</b>
<b>Third Term</b>		
	Arts/Humanities Core	3
	NSM Science Elective	3
	Non-US Diversity	3
	Diversity of US	3
	General Studies Core Area	3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
	General Studies Core Area	6
	General Studies Cognate	6
	NSM Science Elective	3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
	General Studies Core Area	6
	General Studies Cognate	6
	NSM Science Elective	3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
	Arts/Humanities Core	3
	General Studies Core Area	6

General Studies Cognate	6
<b>Hours</b>	<b>15</b>
<b>Seventh Term</b>	
General Studies Core Area	6
General Studies Cognate	6
WAC Elective	3
<b>Hours</b>	<b>15</b>
<b>Eighth Term</b>	
General Studies WAC class	3
Elective	12
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> Determined by placement test or ACT or SAT score. Students in the General Studies program must complete a minimum of two courses in mathematics: MATH 1320 and MATH 2600 or MATH 1750 and 1760 or MATH 1830 and 1840 or MATH 1850 and 1860.

- PLO 1. Students will demonstrate proficiency in using broad, integrative knowledge.
- PLO 2. Students will demonstrate depth of knowledge in a field and are able to produce field-appropriate applications, drawing on both their major field of study and other fields.
- PLO 3. Students will demonstrate proficiency in using and integrating intellectual skills, including communication, across the curriculum.
- PLO 4. Students will demonstrate the knowledge required for responsible citizenship, both from their formal studies and from community-based learning.
- PLO 5. Students will demonstrate the knowledge required for responsible citizenship, both from their formal studies and from community-based learning.

## Materials Science, Certificate

14-16 Credit Hours Required for the Undergraduate Certificate in Materials Science

### Required Courses:

Code	Title	Hours
CHEM 4810	Materials Science I	4
CHEM 4820	Materials Science II	4
Choose 2 Required Elective Courses From:		6-8
CHEM 4200	Green Chemistry	
CHEM 4830	Nanomaterials Science	
CHEM 4850	X-Ray Crystallography	
CHEM 4800	Advanced Materials Chemistry	
PHYS 4510	Physics Of Condensed Matter	
PHYS 4580	Molecular And Condensed Matter Laboratory	
PHYS 4630	Semiconductors 1	
<b>Total Hours</b>		<b>14-16</b>

- Demonstrate an understanding of foundational concepts in chemistry and physics as applied to materials science.
- Demonstrate an understanding of material structure, defects, diffusion, equilibria, phase transformations, and growth and implications for classes of materials, materials characterization, or applications.
- Communicate technical information clearly and accurately in written, oral, and visual formats.
- Locate and use information in the primary literature and research databases.
- Critically read, assess, and evaluate scientific publications, presentations, and data.
- Understand and observe proper safety, ethical, and professional practices.
- Apply scientific skills in an interdisciplinary scientific context.

## Semiconductors Certificate

### Required Course

Code	Title	Hours
EECS 3400	Electronics I	4
Choose 1 Course focused on Devices:		3-4
EECS 4600	Solid State Devices	
EECS 4610	Digital VLSI Design I: Basic Subsystems	
Choose 1 Course focused on Materials and Applications:		3
PHYS 4400	Principles and Varieties of Solar Energy	
PHYS 4510	Physics Of Condensed Matter	
PHYS 4580	Molecular And Condensed Matter Laboratory <sup>1</sup>	
PHYS 4630	Semiconductors 1	
Choose 3 Credits of Laboratory Intensive Work:		3
PHYS 4580	Molecular And Condensed Matter Laboratory <sup>1</sup>	
PHYS 4910	Research Problems-Physics And Astronomy	
PHYS 4940	Internship in Renewable Energy	
<b>Total Hours</b>		<b>13-14</b>

<sup>1</sup> \*PHYS 4580 may not count twice.

- PLO1 Demonstrate an understanding of the electronic properties of semiconductors and their roles in devices.
- PLO2 Demonstrate an understanding of semiconductor materials properties and their origins.
- PLO3 Experiential learning in a hands-on laboratory, research, or industrial setting focusing on semiconductor materials and devices.
- PLO4 Communicate technical information clearly and accurately in written, oral, and visual formats.
- PLO5 Locate and use information in the primary literature and research databases.
- PLO6 Understand and observe proper safety, ethical, and professional practices.
- PLO7 Apply scientific skills in an interdisciplinary scientific context.

## Department of Biological Sciences

Song-Tao Liu, Chair

William Taylor, Associate Chair

Heather Conti, Director of Undergraduate Research

Lisa Jordan, Medical Laboratory Science Program Director and advisor

Brian Ashburner, Advisor for the University of Salford Exchange Program

### Mission

The Department of Biological Sciences exists to provide the best possible educational experiences for all undergraduate and graduate students under its jurisdiction, to advance the frontiers of biology through research and to serve as an intellectual resource to the community at large.

### Description

The Department of Biological Sciences is highly interdisciplinary with faculty employing a wide range of innovative experimental approaches and model systems to study topics such as cancer, immunology, reproductive biology, neurobiology, and virology. Our students benefit from the vibrant research and training atmosphere of our department, with undergraduate and graduate students working closely with faculty to find their passion for biology both within the lecture halls and at the lab bench. Together with other departments across the university, we strive to provide an integrative environment to prepare the next generation of leaders in the life sciences.

### Degrees Offered

The Department of Biological Sciences offers degree programs for a Bachelor of Science and a Bachelor of Arts in Biology, a Bachelor of Science in Neuroscience, and a Bachelor of Science in Medical Laboratory Science. A concentration in neuroscience is available to students in either the Bachelor of Science or Bachelor of Arts in Biology programs. A concentration in Bioinformatics is available for students pursuing the BS in Biology + MS in Bioinformatics dual degree pipeline program. The Department of Environmental Sciences also offers a degree program for a Bachelor of Science in Biology, with a concentration in ecology and organismal biology (see that department's section for requirements).

### Advanced Placement

- Students with a score of 3 will receive credit for BIOL 1120;
- students with a score of 4 will receive credit for BIOL 2170;
- students with a score of 5 will receive credit for BIOL 2150 and BIOL 2170.

Students earning Advanced Placement (AP) scores of 4 or 5 may receive credit for BIOL 2160 and/or BIOL 2180 upon evaluation of their AP laboratory materials by the Department of Biological Sciences.

### Junior Year Studies in England for Biology Majors

The Department of Biological Sciences participates in a well-established exchange program with the University of Salford, England. Selected University of Toledo biology (and pre-medical, pre-dental and pre-veterinary) students have the opportunity to spend their junior year

at Salford. Participants in the program will pay their instructional and general fees to The University of Toledo. Eligibility to participate in the program is based on criteria established by the Department of Biological Sciences. Information on the program may be obtained from the departmental exchange program advisor, Dr. Brian Ashburner. Details are available on academic issues, living accommodations, recreational opportunities and life in England on the departmental Web site at <http://www.utoledo.edu/nsm/bio/salford/>.

### Degrees Offered

- BA in Biology (p. 377)
- BS in Biology (p. 380)
- BS in Medical Laboratory Science (p. 386)
- BS in Neuroscience (p. 387)
- Minor in Biology (p. 389)

#### BIOL 1120 Survey Of Biology

[3 credit hours]

A survey of major biological principles and phenomena in various plants and animals with emphasis on man. (not for major credit) .

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

#### BIOL 1220 Survey Of Biology Laboratory

[1 credit hour]

(Not for major credit) A series of laboratory exercises that supplement the material discussed in BIOL 1120.

**Corequisites:** BIOL 1120

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

#### BIOL 2010 Major Concepts In Biology

[3 credit hours]

This course will discuss topics related to the major concepts of biology such as evolution, the cell, the gene and homeostasis. This course is designed for students majoring in science, engineering or other fields that require biology as a prerequisite who have not had sufficient preparation to begin the Fundamentals of Life Science series (BIOL 2150 or BIOL 2170).

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

#### BIOL 2050 Fundamentals of Neuroscience I

[3 credit hours]

Introduction to the structure and function of the nervous system at cellular and anatomical levels, with an emphasis on neuronal communication, information flow, and integration among major nervous system components

**Prerequisites:** BIOL 2170 with a minimum grade of C and CHEM 1230 with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 2150 Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation**

[4 credit hours]

An introduction to the diversity of multicellular life on earth, evolution and physiological adaptations.

**Prerequisites:** BIOL 2010 with a minimum grade of C or CHEM 1090 with a minimum grade of C or CHEM 1230 with a minimum grade of C or ACT Composite with a score of 21 or BIOL 2170 with a minimum grade of C or Aleks Chem Placement Highest with a score of 50

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**BIOL 2160 Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation**

[1 credit hour]

A series of laboratory exercises which supplement the material discussed in BIOL 2150.

**Corequisites:** BIOL 2150**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance**

[4 credit hours]

A general introduction to cell structure and function, energy processing in plants and animals, basic genetics, molecular biology and development.

**Prerequisites:** CHEM 1090 with a minimum grade of C or CHEM 1230 with a minimum grade of C or BIOL 2010 with a minimum grade of C or BIOL 2150 with a minimum grade of C or ACT Composite with a score of 21 or Aleks Chem Placement Highest with a score of 50

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance**

[1 credit hour]

A series of laboratory exercises which supplement the material discussed in BIOL 2170.

**Corequisites:** BIOL 2170**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**BIOL 2910 Biological Research**

[1 credit hour]

A discussion/demonstration of opportunities for undergraduate research in Biology at the University of Toledo and elsewhere.

**Term Offered:** Spring**BIOL 2980 Special Topics in Biology**

[1-4 credit hours]

Selected topics in biology for biology majors and non-majors.

**Prerequisites:** ENGL 1110 with a minimum grade of D- or MATH 1180 with a minimum grade of D-

**BIOL 3010 Molecular Genetics**

[3 credit hours]

The principles of heredity at the molecular level, covering gene and chromosome structure, replication and repair, recombination, control of gene expression, control of cell division.

**Prerequisites:** BIOL 2170 with a minimum grade of C and (CHEM 1230 with a minimum grade of C or CHEM 1240 with a minimum grade of C-)

**Term Offered:** Spring, Summer, Fall**BIOL 3020 Molecular Genetics Laboratory**

[2 credit hours]

A laboratory course in experimental molecular biology involving gene cloning, analysis of cloned product and other techniques of modern molecular genetics.

**Corequisites:** BIOL 3010**Term Offered:** Spring, Fall**BIOL 3030 Cell Biology**

[3 credit hours]

A study of the internal organization of the eukaryotic cell, organelle and membrane function, cell-cell signaling, cell movement, cell adhesion, and the extracellular matrix.

**Prerequisites:** BIOL 2170 with a minimum grade of C and CHEM 1240 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall**BIOL 3040 Cell Biology Laboratory**

[2 credit hours]

Laboratory exercises involving cell culturing, protein analysis, protein localization and other techniques of modern cell biology.

**Corequisites:** BIOL 3030**Term Offered:** Spring, Summer, Fall**BIOL 3050 Fundamentals of Neuroscience II**

[3 credit hours]

Exploration of the major neural mechanisms that generate, transform, integrate, and store information, drive behavior, maintain physiological homeostasis, and cause neurological disease when compromised.

**Prerequisites:** (BIOL 2050 with a minimum grade of C or NSCI 2050 with a minimum grade of C) and CHEM 1240 with a minimum grade of C

**Term Offered:** Fall**BIOL 3060 Neuroscience Laboratory**

[2 credit hours]

A practical course providing training in foundational laboratory techniques in the neurosciences.

**Prerequisites:** NSCI 3050 with a minimum grade of C and BIOL 2180 with a minimum grade of C

**Term Offered:** Spring**BIOL 3070 Human Physiology**

[3 credit hours]

Detailed structural and functional analysis of the human endocrine, nervous, reproductive, circulatory, respiratory, digestive and excretory systems. An emphasis will be placed on system-system interactions and homeostatic mechanisms.

**Prerequisites:** BIOL 3030 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**BIOL 3090 Developmental Biology**

[3 credit hours]

Lectures on molecular and cellular interactions in animal and plant embryogenesis and development.

**Prerequisites:** BIOL 3030 with a minimum grade of C**Term Offered:** Spring, Fall

**BIOL 3100 Developmental Biology Laboratory**

[1 credit hour]

An analysis of development by biochemical and biological methods using live materials.

**Prerequisites:** BIOL 3090 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Fall

**BIOL 3210 Human Nutrition**

[3 credit hours]

Lectures covering nutrition and transport in humans, role of nutrition in growth and development, nutritional diseases.

**Prerequisites:** BIOL 3070 with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 3510 Comparative Vertebrate Anatomy**

[4 credit hours]

A comparative treatment of the evolutionary and developmental history of the major vertebrate organ systems.

**Prerequisites:** (BIOL 2150 with a minimum grade of C and BIOL 2160 with a minimum grade of C and BIOL 2170 with a minimum grade of C and BIOL 2180 with a minimum grade of C)

**Term Offered:** Spring, Fall

**BIOL 3910 Research Project Laboratory**

[2-3 credit hours]

Provides hands-on authentic research experience and comprehensive understanding of the scientific process. May be repeated once for credit, a maximum of 3 hours may be applied to BIOL elective credits in the major or minor.

**Prerequisites:** BIOL 2170 with a minimum grade of D- and BIOL 2180 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOL 4010 Molecular Biology**

[3 credit hours]

Analysis of the regulatory mechanisms for nucleic acid and protein synthesis; genome structure; recombination; genetic damage and repair.

**Prerequisites:** BIOL 3030 with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 4030 Microbiology**

[3 credit hours]

Lectures on the principles of modern microbiology and virology, including metabolism, growth, cellular morphology, genetics and host parasite relationships. Bacterial and viral diseases will be illustrated.

**Prerequisites:** BIOL 3030 with a minimum grade of C and CHEM 2410 with a minimum grade of C-

**Term Offered:** Spring, Fall

**BIOL 4031 Cell Biology of Neurons and Glia**

[3 credit hours]

An advanced course examining the cell biology of neurons and glia in normal nervous system function and disease.

**Prerequisites:** NSCI 3050 with a minimum grade of C and BIOL 3030 with a minimum grade of C

**Term Offered:** Fall

**BIOL 4040 Microbiology Laboratory**

[1 credit hour]

Laboratories utilizing basic microbiological techniques and illustrating principles of growth, identification and genetics and control of microbes.

**Prerequisites:** BIOL 4030 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 4050 Immunology**

[3 credit hours]

Lectures on the chemical, genetic and cellular basis of the immune response.

**Prerequisites:** BIOL 3030 with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 4060 Immunology Laboratory**

[1 credit hour]

Laboratory studies of the immune response.

**Corequisites:** BIOL 4050

**Term Offered:** Spring, Fall

**BIOL 4090 Cancer Biology**

[3 credit hours]

Introduction to carcinogenesis and the cellular and molecular features of malignancy. Methods to diagnose and treat malignancies will also be presented.

**Prerequisites:** (BIOL 3030 with a minimum grade of C and BIOL 3010 with a minimum grade of C)

**Term Offered:** Fall

**BIOL 4110 Human Genetics and Genomics**

[3 credit hours]

A systematic survey of genetic variation in man with emphasis on modern research methodology including genomics.

**Prerequisites:** BIOL 3030 with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 4210 Molecular Basis of Disease**

[3 credit hours]

Examines the genetic, molecular, and biochemical defects associated with some of the most common human diseases. Includes a review of current research into the molecular causes of selected diseases.

**Prerequisites:** BIOL 3010 with a minimum grade of C and BIOL 3030 with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 4230 Comparative Animal Physiology**

[3 credit hours]

Lectures on the comparative and environmental physiology of vertebrates and invertebrates including metabolism, temperature regulation, respiration, circulation, excretion and osmotic regulation.

**Prerequisites:** (BIOL 3030 with a minimum grade of C and BIOL 3070 with a minimum grade of C)

**Term Offered:** Spring

**BIOL 4250 Introduction to Neurobiology**

[3 credit hours]

An introduction to the molecular, genetic and cellular aspects of neurobiology in humans and model organisms. Topics include neuronal physiology and signaling, neural development, sensation, muscle control, learning and memory.

**Prerequisites:** BIOL 3030 with a minimum grade of C

**Term Offered:** Spring, Fall



**BIOL 4330 Parasitology**

[3 credit hours]

A study of the host-parasite interaction including aspects of parasite morphology, taxonomy, development and ecology.

**Prerequisites:** (BIOL 2150 with a minimum grade of C and BIOL 2170 with a minimum grade of C)

**Term Offered:** Spring, Fall

**BIOL 4700 Biological Literature And Communication**

[3 credit hours]

A writing intensive course that focuses on reading original literature in biology in a variety of formats. Required of all biology majors.

**Prerequisites:** BIOL 3030 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**BIOL 4790 Biology Field Trip**

[2-4 credit hours]

Faculty directed course that incorporates extensive field experience and individual projects.

**Term Offered:** Spring

**BIOL 4910 Undergraduate Research**

[1-3 credit hours]

Faculty directed research. Both oral and written reports of results required.

**Term Offered:** Spring, Summer, Fall

**BIOL 4940 Extramural Research**

[1-4 credit hours]

Prior consent of both the department and the proposed supervisor. Scientist-supervised study of research done in an extramural research institute or scientific laboratory. Written and oral reports to the department required. Maximum of 6 hours may count toward BIOL electives.

**Prerequisites:** (BIOL 2150 with a minimum grade of C and BIOL 2170 with a minimum grade of C)

**Term Offered:** Spring, Summer, Fall

**BIOL 4950 Internship In Biology**

[1-12 credit hours]

Supervised practical experience in the field of biology. Maximum of 6 hours may be used as biology elective credit for BS degree.

**Term Offered:** Spring, Summer

**BIOL 4980 Advanced Topics In Biology**

[1-3 credit hours]

An advanced course for Biology majors in an important area of biology. May be repeated for credit under different specialty numbers (topics).

**Term Offered:** Spring

**BIOL 4990 Independent Study In Biology**

[1-3 credit hours]

Faculty directed readings or projects in a specific area of biology.

**Term Offered:** Spring, Summer, Fall

## Honors in Biology

The Department of Biological Sciences Honors Program is available for qualified majors. Interested students should contact the departmental honors advisor before the beginning of the sophomore year.

To receive an undergraduate degree with honors in biology, all requirements for the B.S. or B.A. degree plus an additional 6 credits of Undergraduate Research/Honors Thesis (BIOL 4910) must be completed

with a minimum GPA of 3.2 overall and in BIOL courses. The program of study must include honors sections of at least two BIOL courses in addition to BIOL 4910. No more than 3.0 hours of undergraduate research can be taken in any one semester. The Undergraduate Research/Honors Thesis credits are completed under the direction of a faculty research director selected by the student. Students must submit a written Honors Thesis to the department before completion of their senior year and make a formal public presentation of their research (typically at the spring Biology Undergraduate Research Symposium). The requirement of Honors Thesis research may be fulfilled in one of three ways:

1. Laboratory research in a Department of Biological Sciences faculty member's laboratory;
2. Laboratory research in a summer or academic year program, in which the student carries out full-time independent research for at least 10 weeks under the direction of a senior scientist on a topic approved by the departmental honors advisor and/or the department chair;
3. Laboratory research in the laboratory of a senior scientist who is not a member of the Department of Biological Sciences on a topic approved by the departmental honors advisor and/or the department chair.

For options 2 and 3, it is very important that the student get his/her proposed thesis research project approved in advance by the departmental honors advisor and/or the department chair, who will monitor progress and direct the BIOL 4910 courses.

## Honors in Neuroscience

To receive an undergraduate degree with honors in neuroscience, all requirements for the B.S. or B.A. degree plus an additional 2 NSCI courses numbered 2000 level and above as Honors (may be honors sections or regular section with honors contract) plus 6 credits of Undergraduate Research/Honors Thesis (BIOL 4910 or INDI 4000) must be completed with a minimum GPA of 3.2 overall and in NSCI courses. The 6 credits of BIOL4910 or INDI4000, includes the 3 BIOL4910/INDI4000 credits required by the Neuroscience Major. No more than 3.0 hours of undergraduate research can be taken in any one semester. The Undergraduate Research/Honors Thesis credits are completed under the direction of a faculty research director selected by the student, and must be broadly Neuroscience focused. Students must submit a written Honors Thesis to the department before completion of their senior year and make a formal public presentation of their research (typically at the spring Biology Undergraduate Research Symposium).

University Honors or Honors College Honors will consist of Departmental Honors plus additional Honors credits specified by the Honors College

## BA in Biology

The Bachelor of Arts degree in Biology requires a minimum of 120 hours of coursework and provides students with a balance of liberal arts and cutting-edge knowledge in the biological sciences to prepare them for rewarding careers applying biological knowledge to solving real world problems. Because of its broad focus, the Bachelor of Arts degree is ideal preparation for careers such as biology educator, health-care specialist, laboratory technician, nutritionist, patent lawyer, regulatory affairs specialist, physician's assistant and many more.

Program includes:

- Biology, BA
- Biology-Neuroscience Concentration, BA

## Biology, BA

For the B.A. degree in biology a minimum of 33 hours of BIOL courses are required.

The following courses must be included:

BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance  
 BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance  
 BIOL 2150 Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation  
 BIOL 2160 Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation  
 BIOL 3010 Molecular Genetics  
 BIOL 3030 Cell Biology  
 BIOL 3070 Human Physiology  
 BIOL 4700 Biological Literature and Communication

A minimum of eleven hours of advanced elective BIOL courses (3000 - 4000 level). A maximum of three credit hours of BIOL 4910 not applied to Departmental Honors may be used to fulfill the advanced elective credits.

The following related courses in mathematics, physics and chemistry are also required:

MATH 2600 Introduction To Statistics (or MATH 2640 or PSY 2100)  
 MATH 1320 & MATH 1330 College Algebra and Trigonometry (or MATH 1340 or (MATH 1750 and MATH 1760))

CHEM 1230 General Chemistry I  
 CHEM 1280 General Chemistry Lab I  
 CHEM 1240 General Chemistry II  
 CHEM 1290 General Chemistry Lab II  
 CHEM 2410 Organic Chemistry I  
 CHEM 2460 Organic Chemistry Laboratory I for Non-Majors  
 CHEM 2420 Organic Chemistry II  
 CHEM 2470 Organic Chemistry Laboratory II for Non-Majors

PHYS 2070 General Physics I and PHYS 2075 (or PHYS 2130 and PHYS 2135)  
 PHYS 2080 General Physics II and PHYS 2085 (or PHYS 2140 AND PHYS 2145)

No classes used to satisfy the requirements of the Biology major, including related courses, may be taken P/NC with the exceptions of BIOL 4910, BIOL 4950, and BIOL 4990

## Biology-Neuroscience Concentration, BA

For the B.A. degree in biology a minimum of 33 hours of BIOL courses are required.

The following courses must be included:

BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance

BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance  
 BIOL 2150 Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation  
 BIOL 2160 Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation  
 BIOL 3010 Molecular Genetics  
 BIOL 3030 Cell Biology  
 BIOL 3070 Human Physiology  
 BIOL 4700 Biological Literature and Communication

A minimum of eleven hours of advanced elective BIOL courses (3000 - 4000 level). A maximum of three credit hours of BIOL 4910 not applied to Departmental Honors may be used to fulfill the advanced elective credits.

The following related courses in mathematics, physics and chemistry are also required:

MATH 2600 Introduction To Statistics (or MATH 2640 or PSY 2100)  
 MATH 1320 & MATH 1330 College Algebra and Trigonometry (or MATH 1340 or (MATH 1750 and MATH 1760))

CHEM 1230 General Chemistry I  
 CHEM 1280 General Chemistry Lab I  
 CHEM 1240 General Chemistry II  
 CHEM 1290 General Chemistry Lab II  
 CHEM 2410 Organic Chemistry I  
 CHEM 2460 Organic Chemistry Laboratory I for Non-Majors  
 CHEM 2420 Organic Chemistry II  
 CHEM 2470 Organic Chemistry Laboratory II for Non-Majors

PHYS 2070 General Physics I and PHYS 2075 (or PHYS 2130 and PHYS 2135)  
 PHYS 2080 General Physics II and PHYS 2085 (or PHYS 2140 and PHYS 2145)

No classes used to satisfy the requirements of the Biology major may be taken P/NC with the exceptions of BIOL 4910, BIOL 4950, and BIOL 4990

**Neuroscience Concentration:** A concentration in neuroscience is available to students pursuing a BA in Biology. Students must apply the following courses towards their BA in Biology degree:

BIOL 2050 Fundamentals of Neuroscience I  
 BIOL 3050 Fundamentals of Neuroscience II  
 BIOL 4910 Undergraduate Research (in a section with a neuroscience focus)  
 BIOL 4700 Biological Literature And Communication (in a section with a neuroscience focus; usually offered only one semester a year)  
 PSY 3400 Cognitive Neuropsychology or PSY 3610 Behavioral Neuroscience or any BIOL/NSCI 4000 level course

## Biology, BA

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
ENGL 1110	College Composition I	3

CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 1320	College Algebra	3
Arts/Humanities Core		3

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<b>Hours</b>	<b>16</b>
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**Second Term**

BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
MATH 1330	Trigonometry	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3

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<b>Hours</b>	<b>16</b>
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**Third Term**

BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
Social Sciences Core		3
Elective		3

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<b>Hours</b>	<b>15</b>
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**Fourth Term**

BIOL 3010	Molecular Genetics	3
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
Arts/Humanities Core		3
Elective		5

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<b>Hours</b>	<b>15</b>
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**Fifth Term**

BIOL 3030	Cell Biology	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Elective		3
Writing Across the Curriculum (WAC)		3

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<b>Hours</b>	<b>14</b>
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**Sixth Term**

BIOL 3070	Human Physiology	3
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
Diversity of US		3
Elective		3

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<b>Hours</b>	<b>14</b>
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**Seventh Term**

MATH 2600	Introduction To Statistics	3
or MATH 2640	or Statistics for Applied Science	
BIOL 3000-4000 Level Electives		6
Elective		3
Non-US Diversity		3

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<b>Hours</b>	<b>15</b>
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**Eighth Term**

BIOL 4700	Biological Literature And Communication (WAC)	3
BIOL 3000-4000 Level Elective		6
Social Science Core		3
Elective		3

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<b>Hours</b>	<b>15</b>
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<b>Total Hours</b>	<b>120</b>
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## Biology-Neuroscience Concentration, BA

Below is a sample plan of study. Consult your degree audit for your program requirements.

<b>First Term</b>	<b>Hours</b>	
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
ENGL 1110	College Composition I	3
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 1320	College Algebra	3
Arts/Humanities Core		3

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<b>Hours</b>	<b>16</b>
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**Second Term**

BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
MATH 1330	Trigonometry	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3

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<b>Hours</b>	<b>16</b>
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**Third Term**

BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
Elective		3
Social Sciences Core (PSY1010)		3

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<b>Hours</b>	<b>15</b>
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**Fourth Term**

BIOL 3010	Molecular Genetics	3
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
Elective		5
Arts/Humanities Core & Diversity of US (talk with advisor about options)		3
<b>Hours</b>		<b>15</b>

**Fifth Term**

BIOL 3030	Cell Biology	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Elective		3
Social Sciences Core		3
<b>Hours</b>		<b>14</b>

**Sixth Term**

BIOL 3070	Human Physiology	3
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
Elective		3
BIOL 2050	Fundamentals of Neuroscience I	3
<b>Hours</b>		<b>14</b>

**Seventh Term**

MATH 2600 or MATH 2640	Introduction To Statistics or Statistics for Applied Science	3
BIOL 3050	Fundamentals of Neuroscience II	3
PSY 3400	Cognitive Neuropsychology	3
BIOL 3XXX-4XXX	Level Elective	3
Elective		3
<b>Hours</b>		<b>15</b>

**Eighth Term**

BIOL 4700	Biological Literature And Communication (WAC; in a section with a neuroscience focus)	3
BIOL 4910	Undergraduate Research (in a lab with a neuroscience focus)	3
BIOL 3XXX-4XXX	Level Elective	3
Elective		3
Non-US Diversity		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>120</b>

- PLO 1. Students will demonstrate a thorough understanding of fundamental concepts of cell and molecular biology, chemistry, biochemistry, evolutionary biology, and physiology. (Broad and integrated knowledge)
- PLO 2. Students will demonstrate the ability to use fundamental concepts of biological science to analyze and evaluate biological observations. (Applied and collaborative learning)

- PLO 3. Students will act effectively as a member of a team. (Applied and collaborative learning)
- PLO 4. Students will understand and comply with ethical behavior in coursework, research, and the use of biological information. (Civic and global learning)
- PLO 5. Students will be able to perform effective primary literature searches and identify relevant primary literature. (Specialized knowledge)
- PLO 6. Students will be able to read primary biological literature and apply critical thinking to the analysis and interpretation of biological experiments. (Applied and collaborative learning)
- PLO 7. Students will demonstrate appropriate oral and written skills to communicate concepts in biology to the public, peers, and specialists. (Intellectual and communication skills/Applied and collaborative learning)
- PLO 8. Students will demonstrate the ability to incorporate diverse view and perspectives. (Civic and global learning)
- PLO 9. Students will demonstrate competence in cultural diversity and to be able to read, write, and converse at a basic level in a foreign language. (Civic and global learning)

## BS in Biology

The Bachelor of Science degree in Biology requires a minimum of 120 hours of coursework and provides students with a strong foundation in molecular and cellular biology and develops their critical thinking skills, to prepare for careers in research, medicine, dentistry, bioinformatics, veterinary medicine, and many others. This degree is ideal for students planning on attending professional school or pursuing a master's or Ph.D. degree in the biological sciences.

Program includes:

- Biology, BS
- Biology -Bioinformatics Concentration, BS
- Biology -Neuroscience Concentration, BS

## Bachelor of Science in Biology

The following courses must be included:

BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance  
 BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance  
 BIOL 2150 Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation  
 BIOL 2160 Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation  
 BIOL 3010 Molecular Genetics  
 BIOL 3030 Cell Biology  
 BIOL 3070 Human Physiology  
 BIOL 3090 Developmental Biology  
 BIOL 4700 Biological Literature and Communication

A minimum of nine hours of advanced elective BIOL courses (3000 - 4000 level), including two laboratory or field experiences. A maximum of three

credit hours of BIOL 4910 not applied to Departmental Honors may be used to fulfill the advanced elective credits.

The following related courses in mathematics, physics and chemistry are also required:

MATH 2600 Introduction To Statistics (or MATH 2640 or PSY 2100)

MATH 1750 Calculus for the Life Sciences with Applications I (or MATH 1830 or MATH 1850)

MATH 1760 Calculus for the Life Sciences with Applications II (or MATH 1840 or MATH 1860)

CHEM 1230 General Chemistry I

CHEM 1280 General Chemistry Lab I

CHEM 1240 General Chemistry II

CHEM 1290 General Chemistry Lab II

CHEM 2410 Organic Chemistry I

CHEM 2460 Organic Chemistry Laboratory I for Non-Majors

CHEM 2420 Organic Chemistry II

CHEM 3510 Biochemistry I

CHEM 3520 Biochemistry II

PHYS 2070 General Physics I and PHYS 2075 (or PHYS 2130 AND PHYS 2135)

PHYS 2080 General Physics II AND PHYS 2085 (or PHYS 2140 AND PHYS 2145)

No classes used to satisfy the requirements of the Biology major, including related courses, may be taken P/NC with the exceptions of BIOL 4910, BIOL 4950, and BIOL 4990.

### Combined bachelor's to master's - SM-BIOL-BS-CMOL : BS in Cell/Molecular Biology Concentration

Undergraduate students accepted to the SM-BIOL-BS-CMOL : BS in Cell/Molecular Biology Concentration option will be admitted to the SM-BIOL-MS-CMOL : MS in Cell/Molecular Biology Concentration and allowed to complete graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Applicants need to be accepted to BA or BS program in biology. To enter the combined program, an undergraduate student needs to have an overall BS or BA with a GPA of 3.00 or an overall GPA of 2.75 with a GPA of at least 3.00 in the last 30 credit hours.

Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in to the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit:

1) Graduate classes taken at The University of Toledo only after the student is accepted in the program.

2)

BIOL 6030 Introduction to Graduate Studies

BIOL 6040 Introduction to Graduate Cell and Molecular Biology and Methods

BIOL 6200 Advanced Signal Transduction or BIOL6090

BIOL 6090 Advanced Cell Biology

BIOL 6960 Graduate Research

are included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

## Bachelor of Science in Biology (Bioinformatics Concentration)

Please note: In order to declare this concentration you must be pursuing the BS in Biology + MS in Bioinformatics dual degree pipeline program.

### The following biology courses must be included:

BIOL 2150 (<https://catalog.utoledo.edu/search/?P=BIOL%202150>) Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation (4 credits)

BIOL 2160 (<https://catalog.utoledo.edu/search/?P=BIOL%202160>) Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation (1 credit)

BIOL 2170 (<https://catalog.utoledo.edu/search/?P=BIOL%202170>) Fundamentals of Life Science: Biomolecules, Cells, and Inheritance (4 credits)

BIOL 2180 (<https://catalog.utoledo.edu/search/?P=BIOL%202180>) Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance (1 credit)

BIOL 3010 (<https://catalog.utoledo.edu/search/?P=BIOL%203010>) Molecular Genetics (3 credits)

BIOL 3030 (<https://catalog.utoledo.edu/search/?P=BIOL%203030>) Cell Biology (3 credits)

BIOL 4010 (<https://catalog.utoledo.edu/search/?P=BIOL%203090>) Molecular Biology (3 credits)

OR BIOL 4110 (<https://catalog.utoledo.edu/search/?P=BIOL%203090>) Human Genetics and Genomics (3 credits)

OR BIOL 4210 (<https://catalog.utoledo.edu/search/?P=BIOL%203090>) Molecular Basis of Disease (3 credits) (replaces later required graduate course)

BIOL 4700 (<https://catalog.utoledo.edu/search/?P=BIOL%204700>) Biological Literature and Communication (3 credits)

### Required upper-division biology labs:

- BIOL 3020 (<https://catalog.utoledo.edu/search/?P=BIOL%203010>) Molecular Genetics Lab (2 credits)
- BIOL 4910 (<https://catalog.utoledo.edu/search/?P=BIOL%204910>) Undergraduate Research (1 credit)  
Honors students in the Bioinformatics Concentration may co-apply three credit hours of BIOL4910 to both the Honors and Bioinformatics Concentration requirements (provided the research was conducted in a laboratory making significant use of bioinformatic analyses).

However, consistent with Honors Program policy, any BIOL4910 credit hours used to satisfy Honors requirements cannot be applied towards the two Laboratory or Field Experience requirements of the BS degree, regardless of whether they are applied within the Bioinformatics Concentration.

No classes used to satisfy the requirements of the Biology major may be taken P/NC with the exceptions of BIOL 4910 (<https://catalog.utoledo.edu/search/?P=BIOL%204910>), BIOL 4950 (<https://catalog.utoledo.edu/search/?P=BIOL%204950>), and BIOL 4990 (<https://catalog.utoledo.edu/search/?P=BIOL%204990>).

**Bioinformatics Concentration:** A concentration in bioinformatics is available to students pursuing a BS in Biology. This is only part of a pipeline program, for students seeking to earn both a BS in Biology and a Masters in Bioinformatics in 5-5.5 years. Students must apply the following courses towards their BS in Biology degree. Note that three of these are graduate-level courses, open only to students in the pipeline program, and those nine credits will count towards BOTH the BS in Biology AND the MS in Bioinformatics:

BIPG 5100 (<https://catalog.utoledo.edu/search/?P=BIOL%204250>)  
Fundamentals of Bioinformatics (3 credits)  
BIPG 5200 (<https://catalog.utoledo.edu/search/?P=BIOL%204700>)  
Statistical Methods in Bioinformatics (3 credits)  
BIPG 6100 (<https://catalog.utoledo.edu/search/?P=PSY%203400>)  
Bioinformatic Computation (3 credits)

#### Total Credits: 34

The following related courses in mathematics, physics and chemistry are also required:

MATH 2600 (<https://catalog.utoledo.edu/search/?P=MATH%202600>) Introduction To Statistics (or MATH 2640 (<https://catalog.utoledo.edu/search/?P=MATH%202640>) or PSY 2100 (<https://catalog.utoledo.edu/search/?P=PSY%202100>))  
MATH 1750 (<https://catalog.utoledo.edu/search/?P=MATH%201750>) Calculus for the Life Sciences with Applications I (or MATH 1830 (<https://catalog.utoledo.edu/search/?P=MATH%201830>) or MATH 1850 (<https://catalog.utoledo.edu/search/?P=MATH%201850>))  
MATH 1760 (<https://catalog.utoledo.edu/search/?P=MATH%201760>) Calculus for the Life Sciences with Applications I (or MATH 1840 (<https://catalog.utoledo.edu/search/?P=MATH%201840>) or MATH 1860 (<https://catalog.utoledo.edu/search/?P=MATH%201860>))  
CHEM 1230 (<https://catalog.utoledo.edu/search/?P=CHEM%201230>) General Chemistry I  
CHEM 1280 (<https://catalog.utoledo.edu/search/?P=CHEM%201280>) General Chemistry Lab I  
CHEM 1240 (<https://catalog.utoledo.edu/search/?P=CHEM%201240>) General Chemistry II  
CHEM 1290 (<https://catalog.utoledo.edu/search/?P=CHEM%201290>) General Chemistry Lab II  
CHEM 2410 (<https://catalog.utoledo.edu/search/?P=CHEM%202410>) Organic Chemistry I  
CHEM 2460 (<https://catalog.utoledo.edu/search/?P=CHEM%202460>) Organic Chemistry Laboratory I for Non-Majors

CHEM 2420 (<https://catalog.utoledo.edu/search/?P=CHEM%202420>) Organic Chemistry II  
CHEM 3510 (<https://catalog.utoledo.edu/search/?P=CHEM%203510>) Biochemistry I  
CHEM 3520 (<https://catalog.utoledo.edu/search/?P=CHEM%203520>) Biochemistry II  
PHYS 2070 (<https://catalog.utoledo.edu/search/?P=PHYS%202070>) General Physics I and PHYS 2075 (or PHYS 2130 (<https://catalog.utoledo.edu/search/?P=PHYS%202130>) and PHYS 2135)  
PHYS 2080 (<https://catalog.utoledo.edu/search/?P=PHYS%202080>) General Physics II and PHYS 2085 (or PHYS 2140 (<https://catalog.utoledo.edu/search/?P=PHYS%202140>) and PHYS 2145)

## Bachelor of Science in Biology (Neuroscience Concentration)

The following courses must be included:

BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance  
BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance  
BIOL 2150 Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation  
BIOL 2160 Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation  
BIOL 3010 Molecular Genetics  
BIOL 3030 Cell Biology  
BIOL 3070 Human Physiology  
BIOL 3090 Developmental Biology  
BIOL 4700 Biological Literature and Communication

A minimum of nine hours of advanced elective BIOL courses (3000 - 4000 level), including two laboratory or field experiences. A maximum of three credit hours of BIOL 4910 not applied to Departmental Honors may be used to fulfill the advanced elective credits.

The following related courses in mathematics, physics and chemistry are also required:

MATH 2600 Introduction To Statistics (or MATH 2640 or PSY 2100)  
MATH 1750 Calculus for the Life Sciences with Applications I (or MATH 1830 or MATH 1850)  
MATH 1760 Calculus for the Life Sciences with Applications I (or MATH 1840 or MATH 1860)  
CHEM 1230 General Chemistry I  
CHEM 1280 General Chemistry Lab I  
CHEM 1240 General Chemistry II  
CHEM 1290 General Chemistry Lab II  
CHEM 2410 Organic Chemistry I  
CHEM 2460 Organic Chemistry Laboratory I for Non-Majors  
CHEM 2420 Organic Chemistry II  
CHEM 3510 Biochemistry I  
CHEM 3520 Biochemistry II  
PHYS 2070 General Physics I and PHYS 2075 (or PHYS 2130 and PHYS 2135)

PHYS 2080 General Physics II and PHYS 2085 (or PHYS 2140 and PHYS 2145)

No classes used to satisfy the requirements of the Biology major or minor may be taken P/NC with the exceptions of BIOL 4910, BIOL 4950, and BIOL 4990.

**Neuroscience Concentration:** A concentration in neuroscience is available to students pursuing a BS in Biology. Students must apply the following courses towards their BS in Biology degree:

- BIOL 2050 Fundamentals of Neuroscience I
- BIOL 3050 Fundamentals of Neuroscience II
- BIOL 4910 Undergraduate Research (in a section with a neuroscience focus)
- BIOL 4700 Biological Literature And Communication (in a section with a neuroscience focus)
- PSY 3400 Cognitive Neuropsychology or PSY 3610 Behavioral Neuroscience or any NSCI 4000 level course

Note: Honors students in the Neuroscience Concentration may co-apply three credit hours of BIOL4910 to both the Honors and Neuroscience Concentration requirements (provided the research was conducted in a neuroscience laboratory). However, consistent with Honors Program policy, any BIOL4910 credit hours used to satisfy Honors requirements cannot be applied towards the two Laboratory or Field Experience requirements of the BS degree, regardless of whether they are applied within the Neuroscience Concentration.

**Concentration in Ecology and Organismal biology:** See the Department of Environmental Sciences (p. 403) section of this catalog.

## Bachelor of Science in Biology

Below is a sample program of study. Consult your degree audit for your program requirements.

First Term	Hours
NSM 1000 Foundations of Academic Success for Science and Math Majors	2
BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1230 General Chemistry I	4
CHEM 1280 General Chemistry Lab I	1
ENGL 1110 College Composition I	3
<b>Hours</b>	<b>15</b>
Second Term	Hours
BIOL 2150 Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160 Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1240 General Chemistry II	4
CHEM 1290 General Chemistry Lab II	1
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3

Arts/Humanities Core	3
<b>Hours</b>	<b>16</b>
Third Term	Hours
BIOL 3010 Molecular Genetics	3
BIOL 3020 Molecular Genetics Laboratory <sup>1</sup>	2
CHEM 2410 Organic Chemistry I	3
CHEM 2460 Organic Chemistry Laboratory I for Non-Majors	1
Select one of the following:	4
MATH 1750 Calculus For The Life Sciences With Applications I	
MATH 1830 Calculus I For Mathematicians, Scientists And Educators	
MATH 1850 Single Variable Calculus I	
Social Sciences Core	3
<b>Hours</b>	<b>16</b>
Fourth Term	Hours
BIOL 3030 Cell Biology	3
CHEM 2420 Organic Chemistry II	3
Select one of the following:	3-4
MATH 1760 Calculus For The Life Sciences With Applications II	
MATH 1840 Calculus II For Mathematicians, Scientists And Educators	
MATH 1860 Single Variable Calculus II	
Social Sciences Core	3
Arts/Humanities Core	3
<b>Hours</b>	<b>15-16</b>
Fifth Term	Hours
BIOL 3090 Developmental Biology	3
BIOL 3100 Developmental Biology Laboratory <sup>1</sup>	1
PHYS 2070 General Physics I	4
PHYS 2075 General Physics I - Lab	1
CHEM 3510 Biochemistry I	3
Diversity of US	3
<b>Hours</b>	<b>15</b>
Sixth Term	Hours
BIOL 3070 Human Physiology	3
PHYS 2080 General Physics II	4
PHYS 2085 General Physics II - Lab	1
CHEM 3520 Biochemistry II	3
Writing Across the Curriculum Elective (WAC)	3
<b>Hours</b>	<b>14</b>
Seventh Term	Hours
BIOL 3XXX/4XXX Major Requirement <sup>2</sup>	3
Arts/Humanities Core	3
Electives to get to 120 hours	9
<b>Hours</b>	<b>15</b>
Eighth Term	Hours
BIOL 4700 Biological Literature And Communication	3



BIOL 3XXX/4XXX Major Requirement <sup>2</sup>	3
MATH 2600 Introduction To Statistics or MATH 2640 or Statistics for Applied Science	3
Electives to get to 120 hours	2
Non-US Diversity	3
<b>Hours</b>	<b>14</b>
<b>Total Hours</b>	<b>120-121</b>

<sup>1</sup> May take different 3000-4000 level lab in different semester, 2 lab experiences are required.

<sup>2</sup> 9 hours of 3000-4000 level BIOL electives are required. Hours from the 3000-4000 level BIOL lab requirement count toward elective requirements.

## Bachelor of Science in Biology (Bioinformatics Concentration)

First Term	Hours
BIOL 2150 Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160 Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1230 General Chemistry I	4
CHEM 1280 General Chemistry Lab I	1
ENGL 1110 College Composition I	3
NSM 1000 Foundations of Academic Success for Science and Math Majors	2
<b>Hours</b>	<b>15</b>

Second Term	Hours
BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1240 General Chemistry II	4
CHEM 1290 General Chemistry Lab II	1
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
Elective	3
<b>Hours</b>	<b>16</b>

Third Term	Hours
BIOL 3010 Molecular Genetics	3
BIOL 3020 Molecular Genetics Laboratory	2
CHEM 2410 Organic Chemistry I	3
CHEM 2460 Organic Chemistry Laboratory I for Non-Majors	1
MATH 1750 Calculus For The Life Sciences With or MATH 1850 Applications I or Single Variable Calculus I	4
Elective	3
<b>Hours</b>	<b>16</b>

Fourth Term	Hours
BIOL 3030 Cell Biology	3

CHEM 2420 Organic Chemistry II (NOTE that adding CHEM 2470 (1 cr. Organic II Lab) would give you a minor in chemistry.)	3
MATH 1760 Calculus For The Life Sciences With or MATH 1860 Applications II or Single Variable Calculus II	3
Electives	6
<b>Hours</b>	<b>15</b>

Fifth Term	Hours
BIOL 4910 Undergraduate Research	1
PHYS 2070 General Physics I or PHYS 2130 or Physics For Science And Engineering Majors I	4
PHYS 2075 General Physics I - Lab or PHYS 2135 or Physics for Science and Engineering Majors I - Lab	1
CHEM 3510 Biochemistry I	3
MATH 2600 Introduction To Statistics	3
Elective	3
<b>Hours</b>	<b>15</b>

Sixth Term	Hours
PHYS 2080 General Physics II	4
PHYS 2085 General Physics II - Lab	1
CHEM 3520 Biochemistry II	3
BIOL 4010 Molecular Biology	3
Elective	3
<b>Hours</b>	<b>14</b>

Seventh Term	Hours
Electives	6
<b>Hours</b>	<b>6</b>

Eighth Term	Hours
BIOL 4700 Biological Literature And Communication	3
BIPG 5200 Statistical Methods in Bioinformatics	3
BIPG 5100 Fund Bioinformatics Proteomics	3
Electives	6
<b>Hours</b>	<b>15</b>

Ninth Term	Hours
BIPG 6100 Bioinformatic Computation	3
BMSP 6390 Mentored Research	1
BIPG 6400 Applications of Bioinformatics or BRIM 6200 or Biomarker Disc,Valid & Impleme	3
BMSP 6360 Current Problems and Research Approaches in Cell Membranes	2
Undergraduate Elective	3
<b>Hours</b>	<b>12</b>
<b>Total Hours</b>	<b>124</b>



## Bachelor of Science in Biology (Neuroscience Concentration)

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>15</b>
Second Term		Hours
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
Humanities Core		3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
<b>Hours</b>		<b>16</b>
Third Term		Hours
BIOL 3010	Molecular Genetics	3
BIOL 3020	Molecular Genetics Laboratory <sup>1</sup>	2
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
Select one of the following:		4
MATH 1750	Calculus For The Life Sciences With Applications I	
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	
MATH 1850	Single Variable Calculus I	
Social Sciences Core		3
<b>Hours</b>		<b>16</b>
Fourth Term		Hours
BIOL 3030	Cell Biology	3
CHEM 2420	Organic Chemistry II	3
Select one of the following:		3-4
MATH 1760	Calculus For The Life Sciences With Applications II	
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	
MATH 1860	Single Variable Calculus II	
Arts/Humanities Core		3

Social Sciences Core		3
<b>Hours</b>		<b>15-16</b>
Fifth Term		Hours
BIOL 3090	Developmental Biology	3
PSY 2400	Cognitive Psychology	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
CHEM 3510	Biochemistry I	3
<b>Hours</b>		<b>14</b>
Sixth Term		Hours
BIOL 3070	Human Physiology	3
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
CHEM 3520	Biochemistry II	3
BIOL 2050	Fundamentals of Neuroscience I	3
<b>Hours</b>		<b>14</b>
Seventh Term		Hours
PSY 3400	Cognitive Neuropsychology	3
BIOL 3050	Fundamentals of Neuroscience II <sup>2</sup>	3
MATH 2600	Introduction To Statistics	3
	or MATH 2640 or Statistics for Applied Science	
BIOL 3XXX/4XXX Biology Elective		3
Non US Diversity		3
<b>Hours</b>		<b>15</b>
Eighth Term		Hours
BIOL 4910	Undergraduate Research (Neuro) <sup>2</sup>	3
BIOL 4700	Biological Literature And Communication ((Neuro))	3
Electives to get to 120 hours		3
Elective (WAC)		3
Diversity of US		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>120-121</b>

<sup>1</sup> May take different 3000-4000 level lab in different semester, 2 are required.

<sup>2</sup> 9 hours of 3000-4000 level BIOL electives are required. Hours from the 3000-4000 level BIOL lab requirement count toward requirement.

- PLO 1. Students will demonstrate a thorough understanding of fundamental concepts of cell and molecular biology, chemistry, biochemistry, evolutionary biology, and physiology. (Broad and integrated knowledge)
- PLO 2. Students will demonstrate the ability to use fundamental concepts of biological science to analyze and evaluate biological observations in written and mathematical terms. (Applied and collaborative learning)
- PLO 3. Students will act effectively as a member of a team. (Applied and collaborative learning)

- PLO 4. Students will understand and comply with ethical behavior in coursework, research, and the use of scientific information. (Civic and global learning)
- PLO 5. Students will be able to perform effective primary literature searches and identify relevant primary literature. (Specialized knowledge)
- PLO 6. Students will be able to read primary biological literature and apply critical thinking to the analysis and interpretation of biological experiments. (Applied and collaborative learning)
- PLO 7. Students will demonstrate appropriate oral and written skills to communicate concepts in biology to the public, peers, and specialists. (Intellectual Skills/Applied and Collaborative Learning)
- PLO 8. Students will demonstrate the ability to incorporate diverse views and perspectives. (Civic and global learning)

## BS in Medical Laboratory Science

This degree program prepares you for certification as a Medical Laboratory Scientist.

You will complete 5 semesters of foundational courses after admission into the university, 2 semesters of Medical laboratory Science course work after successful application into the professional portion of the program, and 14-15 weeks of clinical externship in an affiliated hospital laboratory the Spring semester of your senior year. A certification examination is taken at the successful completion of the hospital training program. The requirements for certification are established by the Board of Certification of the American Society of Clinical Pathologists.

Acceptance into the professional portion of the program is competitive and application is made during the spring of your sophomore year. The application will be posted on the MLS website during Spring and Summer semester and close at the beginning of Fall semester. In order to be admitted, an overall GPA of greater or equal to 2.5, a C or better in the foundational math and science courses, and completion of all university core requirements must be met.

The following foundational science and math courses are required to be completed with a grade of C or better prior to beginning study in the clinical portion of the program:

CHEM 1230 General Chemistry I  
 CHEM 1280 General Chemistry Lab I  
 CHEM 1240 General Chemistry II  
 CHEM 1290 General Chemistry Lab II  
 CHEM 2410 Organic Chemistry I  
 CHEM 2460 Organic Chemistry Laboratory I for Non-Majors  
 CHEM 2420 Organic Chemistry II  
 CHEM 2470 Organic Chemistry Laboratory II for Non-Majors

BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance  
 BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance  
 BIOL 3010 Molecular Genetics  
 BIOL 3030 Cell Biology  
 BIOL 3070 Human Physiology  
 Human or Vertebrate Anatomy with lab (either EXSC 2510 & EXSC 2520 or BIOL 3510)

BIOL 4030 & BIOL 4040 Microbiology with Laboratory

BIOL 4050 & BIOL 4060 Immunology With Laboratory

MATH 1320 College Algebra

MATH 2600 Introduction To Statistics

MEDT 2010 Clinical Laboratory Techniques

The following courses comprise the clinical portion of the program and are required to be completed with a grade of C or better:

MEDT 4020 Clinical Hematology I

MEDT 4025 Clinical Hematology II

MEDT 4030 Urine Analysis and Body Fluids

MEDT 4040 Clinical Chemistry

MEDT 4050 Clinical Microbiology I

MEDT 4060 Clinical Immunology

MEDT 4080 Clinical Immunohematology

MEDT 4120 Clinical Microbiology II

MEDT 4500 Clinical Research and Clinical Correlations

MEDT 4950 Clinical Externship: Management

MEDT 4951 Clinical Externship: Microbiology

MEDT 4952 Clinical Externship: Chemistry

MEDT 4953 Clinical Externship: Hematology

MEDT 4954 Clinical Externship: Immunohematology

The recommended Composition II option for students in the Medical Laboratory Science program is ENGL 2950 Science And Technical Report Writing.

The clinical externships in the fourth year include sites at the University of Toledo Medical Center, ProMedica hospital laboratories, the Toledo Clinic and other local and regional hospitals.

A grade of C or better is required in all the professional courses (MEDT 4000+) in order to successfully complete the program. Upon successful completion of all course requirements, you will be awarded the degree of Bachelor of Science in Medical Laboratory Science and you are then eligible to take the national American Society of Clinical Pathology Board of Certification (ASCP BOC) certification examination. However graduating from the UToledo MLS program does not guarantee passage of the ASCP BOC exam.

Below is a sample plan of study. Consult your degree audit for your program requirements. The medical laboratory advisor will assist students in planning the sequence in which the pre-clinical courses are taken during the student's years at the university. Therefore, interested applicants should consult with the medical technology program advisor before selecting this professional career option.

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
ENGL 1110	College Composition I	3

MATH 1320	College Algebra	3
Core Elective (Multicultural)		3

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<b>Hours</b>	<b>16</b>
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**Second Term**

CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
EXSC 2510	Human Anatomy	3
EXSC 2520	Human Anatomy Lab	1
Arts/Humanities Core		3

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<b>Hours</b>	<b>17</b>
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**Third Term**

BIOL 3030	Cell Biology	3
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
MEDT 2010	Introduction to Medical Laboratory Techniques	2
ENGL 2950	Technical Writing	3
Social Sciences Core		3

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<b>Hours</b>	<b>15</b>
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**Fourth Term**

BIOL 3010	Molecular Genetics	3
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
BIOL 3070	Human Physiology	3
MATH 2600	Introduction To Statistics	3
Core Elective (Multicultural)		3
Apply for Clinical Program (terms 5-7) this spring		

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<b>Hours</b>	<b>16</b>
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**Fifth Term**

BIOL 4050	Immunology	3
BIOL 4060	Immunology Laboratory	1
Social Sciences Core		3
BIOL 4030	Microbiology	3
BIOL 4040	Microbiology Laboratory	1
Arts/Humanities Core		3

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<b>Hours</b>	<b>14</b>
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**Sixth Term**

MEDT 4020	Clinical Hematology I	4
MEDT 4030	Urine Analysis and Body Fluids	2
MEDT 4050	Clinical Microbiology I	4
MEDT 4060	Clinical Immunology	3
MEDT 4950	Clinical Externship: Management	1

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<b>Hours</b>	<b>14</b>
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**Seventh Term**

MEDT 4040	Clinical Chemistry	5
MEDT 4080	Clinical Immunohematology	4
MEDT 4025	Clinical Hematology II	3
MEDT 4120	Clinical Microbiology II	3

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<b>Hours</b>	<b>15</b>
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**Eighth Term**

MEDT 4951	Clinical Externship: Microbiology	4
MEDT 4952	Clinical Externship: Chemistry	2
MEDT 4953	Clinical Externship: Hematology	2
MEDT 4954	Clinical Externship: Immunohematology	3
MEDT 4500	Clinical Research and Clinical Correlations	3

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<b>Hours</b>	<b>14</b>
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<b>Total Hours</b>	<b>121</b>
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- Demonstrate a level of knowledge of the field that is commensurate with that expected for ASCP certified Medical Laboratory Scientists.
- Perform routine and complex analytical tests on all specimens received in the laboratory, such as blood, body fluids and other types of specimens.
- Operate routinely used laboratory instruments and follow their preventive maintenance protocols. Be able to identify malfunctions and make minor repairs or adjustments.
- Utilize basic scientific principles in developing new techniques and procedures and be able to evaluate the usefulness and practicality for the laboratory situation presented, i.e., finance, personnel, physical space.
- Correlate data from other sections of the laboratory in deciding whether results are correct and accurate; confirm abnormal findings and timely report critical findings according to the institution's established protocols.
- Examine and evaluate quality control results and institute correcting procedures if results are out of control.
- Demonstrate concern for and cooperation with other members of the health care team, patients, their family members and visitors.
- Recognize the need for continued educational growth within the profession to ensure progress toward professional competence.
- Respect patients rights and privacy and the confidentiality of patient's health information.
- Abide by the laboratory's safety policies. Recognize unsafe conditions, correct them and/or report them to the supervisor.
- Abide by the code of ethics for the profession.
- If placed in a supervisory position, understand and apply the principles of management and supervision.

## BS in Neuroscience

Neuroscience is the study of the structure and function of the human brain and nervous system: how we sense our environment, how we move, how we think, make decisions, feel emotions, learn and form memories. Since the brain is involved in every important human endeavor, understanding the function, and dysfunction, of the brain is critical in

a wide variety of fields (e.g., medicine, psychology, law, education and public policy).

A BS in Neuroscience prepares you for a wide range of career paths. You will be prepared to compete successfully for employment in biomedical research, medical device development, biotechnology, scientific advocacy, public policy or scientific writing. Graduates will also be highly competitive for pursuing medical school or a graduate degree in neurosciences, neuropharmacology and other related fields.

Code	Title	Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
NSCI 1000	The Neuropsychiatric Patient	1
NSCI 2050	Fundamentals of Neuroscience I	3
NSCI 3050	Fundamentals of Neuroscience II	3
NSCI 3060	Neuroscience Laboratory	2
NSCI 4010	Functional Neuroanatomy	3
NSCI 4020	Neuropharmacology	3
BIOL 4910	Undergraduate Research	3
or INDI 4000	Directed Research in Human Health Sciences	
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
BIOL 3010	Molecular Genetics	3
BIOL 3020	Molecular Genetics Laboratory	2
BIOL 3030	Cell Biology	3
BIOL 3070	Human Physiology ( )	3
or PHCL 2610	Introductory Physiology	
NSCI 4050	Cognitive Neuroscience	3
BIOL 4700	Biological Literature And Communication	3
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
CHEM 2420	Organic Chemistry II	3
MATH 1750	Calculus For The Life Sciences With Applications I	4
MATH 1760	Calculus For The Life Sciences With Applications II	3
MATH 2600	Introduction To Statistics	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
Choose three of the following:		9
NSCI 4030	Cell Biology of Neurons and Glia	
NSCI 4100	Neuroinformatics	
NSCI 4510	Medical Neuroanatomy I - Topographic	
NSCI 4520	Medical Neuroanatomy II - Systems	
NSCI 4710	Biophysics of Excitable Membranes	

BIOE 4720		Total Hours	88
<b>First Term</b>			<b>Hours</b>
NSM 1000	Foundations of Academic Success for Science and Math Majors		2
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance		4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance		1
CHEM 1230	General Chemistry I		4
CHEM 1280	General Chemistry Lab I		1
ENGL 1110	College Composition I		3
		<b>Hours</b>	<b>15</b>
<b>Second Term</b>			
NSCI 1000	The Neuropsychiatric Patient		1
NSCI 2050	Fundamentals of Neuroscience I		3
CHEM 1240	General Chemistry II		4
CHEM 1290	General Chemistry Lab II		1
MATH 1750	Calculus For The Life Sciences With Applications I		4
ENGL 1130	College Composition II: Academic Disciplines And Discourse		3
		<b>Hours</b>	<b>16</b>
<b>Third Term</b>			
NSCI 3050	Fundamentals of Neuroscience II		3
BIOL 3010	Molecular Genetics		3
BIOL 3030	Cell Biology		3
CHEM 2410	Organic Chemistry I		3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors		1
MATH 1760	Calculus For The Life Sciences With Applications II		3
		<b>Hours</b>	<b>16</b>
<b>Fourth Term</b>			
NSCI 3060	Neuroscience Laboratory		2
BIOL 3020	Molecular Genetics Laboratory		2
BIOL 3070	Human Physiology		3
CHEM 2420	Organic Chemistry II		3
MATH 2600	Introduction To Statistics		3
Arts/Humanities Core			3
		<b>Hours</b>	<b>16</b>
<b>Fifth Term</b>			
NSCI 4010	Functional Neuroanatomy		3
NSCI 4020	Neuropharmacology		3
PHYS 2070	General Physics I		4
PHYS 2075	General Physics I - Lab		1
Elective			3
		<b>Hours</b>	<b>14</b>
<b>Sixth Term</b>			
NSCI 4050	Cognitive Neuroscience		3

PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
BIOL 4910	Undergraduate Research	2
Social Sciences Core		3
Elective		3
<b>Hours</b>		<b>16</b>

**Seventh Term**

NSCI 4030	Cell Biology of Neurons and Glia	3
Elective - Major		3
Arts/Humanities Core		3
Diversity of US		3
Non-US Diversity		3
<b>Hours</b>		<b>15</b>

**Eighth Term**

Elective - Major		3
Elective - Major		3
BIOL 4700	Biological Literature And Communication	3
Social Sciences Core		3
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

- PLO 1. Explain and relate the structure and function of the nervous system in health and disease.
- PLO 2. Select and/or demonstrate the appropriate methods to use in the modern investigation of neuroscience topics.
- PLO 3. Apply principles of molecular/cellular, systems, cognitive, and/or bioinformatics neuroscience to research, education, and health.
- PLO 4. Evaluate the anatomical, developmental and functional components of neural circuits and organization.
- PLO 5. Interpret data and literature in the context of neural function, plasticity, and neurological disorders.
- PLO 6. Critically analyze scientific research as it relates to the field of neuroscience.
- PLO 7. Demonstrate appropriate oral and written skills to communicate scientific concepts to the public, peers, and specialists.
- PLO 8. Justify a chosen career path in neuroscience and related fields in biomedicine.
- PLO 9. Act ethically and responsibly in a professional setting.
- PLO 10. Act effectively as a member of a team.

## Minor in Biology

The minor in biology requires 22 credits including the following required courses and a minimum GPA of 2.0 in these courses.

Code	Title	Hours
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4

BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
BIOL 3010	Molecular Genetics	3
BIOL 3030	Cell Biology	3
Select 6 credits of elective courses at the 3000-4000 level		6
<b>Total Hours</b>		<b>22</b>

No classes used to satisfy the requirements of the Biology minor, may be taken P/NC with the exceptions of BIOL 4910, BIOL 4950, and BIOL 4990.

## Department of Chemistry & Biochemistry

Steven Sucheck, Chair  
 Jianglong Zhu, Undergraduate Advising Coordinator  
 John Bellizzi, Honors Advisor  
 Xiche Hu, Undergraduate Advisor  
 Dragan Isailovic, Undergraduate Advisor  
 Timothy Mueser, Undergraduate Advisor  
 Joseph Schmidt, Undergraduate Advisor, Honors Advisor  
 Wei Li, Undergraduate Advisor

## Degrees Offered

The Department of Chemistry and Biochemistry offers degree programs for a Bachelor of Science in chemistry or biochemistry.

Both the Bachelor of Science degrees in chemistry and in biochemistry are certified by the American Chemical Society Committee on Professional Training (<https://www.acs.org/content/acs/en/about/governance/committees/professional-training.html>)

A minor in chemistry, a minor in Green Chemistry and Engineering and certificates in Analytical Chemistry and in Materials Chemistry are also available.

## Department Mission

The Department of Chemistry and Biochemistry strives (1) to present outstanding teaching and the highest quality education in chemistry and biochemistry to students at all levels and in all disciplines, (2) to develop and maintain leading research programs with national and international reputations, both in support of our teaching programs and to add to scientific and technological base of the State of Ohio and the Nation, (3) to advance the development of teaching and research qualifications of our students and faculty, (4) to continuously improve the high quality undergraduate and graduate programs with emphasis on hands on training, and (5) to serve the University, the Community, and Society through the unique experiences and talents of our students, staff and faculty.

## Advanced Placement

- Students with a score of 3 on the Chemistry Advanced Placement Exam will receive credit for CHEM 1100 and placement into CHEM 1230 and CHEM 1280;
- Students with a score of 4 will receive credit for CHEM 1230 and CHEM 1280;

- Students with a score of 5 will receive credit for CHEM 1230, CHEM 1280, CHEM 1240, and CHEM 1290.

## Experience in Research

The department offers experience in research under faculty guidance at all levels, in CHEM 2910, CHEM 3910 and CHEM 4910. Students are encouraged to talk with faculty members about research participation and to consult with more than one faculty member about appropriate projects. A student who wishes to participate in research should obtain the consent of a faculty member who agrees to guide this work and the approval of a departmental undergraduate advisor before the first day of the first semester that he/she enrolls for CHEM 2910, CHEM 3910 or CHEM 4910. Students may enroll in the different courses, CHEM 2910, CHEM 3910 and CHEM 4910, with different faculty members.

## Junior Year Studies in England for Chemistry and Biochemistry Majors

The University of Toledo has an exchange program agreement with the University of Salford, England. Selected University of Toledo students spend their junior years at Salford, and students in the Salford three-year chemistry honors program spend their second year at the University of Toledo. Eligibility is based on scholastic standing. Participants in the program pay their instructional and general fees to their home institutions. Information on the program may be obtained from Dr. Brian Ashburner, Director of the UToledo-Salford Exchange Program.

## Degrees Offered

- BS in Biochemistry (p. 396)
- BS in Chemistry (p. 398)
- Minor in Chemistry (p. 402)
- Minor in Green Chemistry & Engineering (p. 402)
- Certificate in Analytical Chemistry (p. 402)
- Certificate in Materials Chemistry (p. 403)

### CHEM 1090 Elementary Chemistry

[3 credit hours]

For students who major in science, engineering or other fields which require chemistry as a prerequisite subject who have not had a previous course in chemistry and whose preparation is not sufficient to begin General Chemistry (CHEM 1230).

**Prerequisites:** MATH 1200 with a minimum grade of C or MATH 1320 with a minimum grade of C or MATH 1340 with a minimum grade of C or MATH 1750 with a minimum grade of C or MATH 1830 with a minimum grade of C or ACT Math with a score of 20 or Aleks Math Placement Test with a score of 046 or Math - Coll Algebra Placement with a score of 10 or SAT Mathematics with a score of 480 or MATH SECTION SCORE with a score of 510

**Term Offered:** Spring, Summer, Fall

### CHEM 1100 Chemistry And Society

[3 credit hours]

An introduction to basic chemistry and a survey of the impact that chemistry has on society. Topics include: power, energy, and fuels; water and pollution; soaps and detergents; nutrition; poisons and toxins; plastics and polymers; drugs.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

### CHEM 1110 Elementary Chemistry for the Health Sciences

[3 credit hours]

The study of chemistry for students that are studying nursing or other allied health related fields who have not had a previous course in chemistry or whose preparation in chemistry is not sufficient to begin Chemistry for the Health Sciences (CHEM 1120).

**Prerequisites:** ACT Math with a score of 20 or MATH SECTION SCORE with a score of 520 or Aleks Math Placement Test with a score of 046 or Math - Coll Algebra Placement with a score of 10 or MATH 1200 with a minimum grade of C or MATH 1320 with a minimum grade of C or MATH 1340 with a minimum grade of C or MATH 1750 with a minimum grade of C or MATH 1830 with a minimum grade of C or MATH 1850 with a minimum grade of C

**Term Offered:** Spring, Fall

### CHEM 1120 Chemistry For Health Sciences

[4 credit hours]

The study of chemistry for students majoring in nursing and other health-related fields. This course includes general, organic and biochemical topics in condensed form. The impact of chemistry in health fields will be emphasized.

**Prerequisites:** CHEM 1110 with a minimum grade of C or Aleks Health Science Placement with a score of 39 or Aleks Health Science Retest with a score of 39

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

### CHEM 1150 Chemistry And Society Laboratory

[1 credit hour]

Laboratory introduction to the concepts of chemistry to accompany Chemistry 1100. Demonstrations by laboratory experiments of lessons developed in the accompanying lecture course. Two hours of laboratory per week.

**Term Offered:** Spring, Fall

Core Natural Sciences, OT36 Natural Science

### CHEM 1200 Problem Solving In General Chemistry

[1 credit hour]

Problem solving and skill development for students enrolled in CHEM 1230 who obtained a satisfactory score on the chemistry placement test but need additional assistance in selected topics. May be taken only as P/NC. Pre-requisites: CHEM 1090 with a minimum grade of C or better OR pass placement exam.

**Prerequisites:** CHEM 1090 with a minimum grade of C or Aleks Chem Placement Highest with a score of 50 or Chemistry Placement with a score of 17

**Term Offered:** Spring, Fall

**CHEM 1230 General Chemistry I**

[4 credit hours]

An introduction to atomic structure, chemical bonding, kinetic-molecular theory, energy relationships and structural concepts. This sequence is for students who major in science, engineering or other fields which require chemistry as a prerequisite subject. Three hours lecture and one hour discussion per week.

**Prerequisites:** CHEM 1090 with a minimum grade of C or Chemistry Placement with a score of 17 or Aleks Chem Placement Highest with a score of 50

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**CHEM 1240 General Chemistry II**

[4 credit hours]

An introduction to solutions, equilibrium, acid-base theory, energy relationships and structural concepts. This sequence is for students who major in science, engineering or other fields which require chemistry as a prerequisite subject. Three hours lecture and one hour discussion per week.

**Prerequisites:** CHEM 1230 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**CHEM 1280 General Chemistry Lab I**

[1 credit hour]

Experiments over topics covered in CHEM 1230 lectures. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting. Three hours of laboratory per week.

**Prerequisites:** CHEM 1230 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**CHEM 1290 General Chemistry Lab II**

[1 credit hour]

Experiments over topics covered in CHEM 1240 lectures. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting. Three hours of laboratory per week.

**Prerequisites:** CHEM 1240 (may be taken concurrently) with a minimum grade of C and CHEM 1280 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**CHEM 1300 Principles of General Chemistry**

[2 credit hours]

This is an accelerated course with selected topics from general chemistry including matter, units, ionic compounds, molecular compounds, aqueous solutions, precipitation reactions, acid-base reactions, oxidation-reduction reactions, concentration, enthalpy, calorimetry, polarity, Lewis structures, dipole moment, and intermolecular forces. This course is for students who major in science, engineering or other fields which require CHEM1240. Students who earned a C-/D+/D/- in CHEM1230 may take this course in place of the prerequisite grade of C in CHEM1230 such that they are eligible to advance to CHEM1240 without having to retake CHEM1230. Students can also take this course to improve preparation and performance in CHEM1240. This is a DL course with a 2 hour meeting on campus for a final exam.

**Prerequisites:** CHEM 1230 with a minimum grade of D-

**CHEM 1910 Survey Of Research**

[1 credit hour]

Survey of current research areas at the frontiers of chemistry, including topics that cross the boundaries with other disciplines. May be taken only as P/NC.

**Term Offered:** Spring

**CHEM 2410 Organic Chemistry I**

[3 credit hours]

Study of structure and reactions of organic compounds. Three hours lecture per week.

**Prerequisites:** CHEM 1240 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**CHEM 2420 Organic Chemistry II**

[3 credit hours]

Study of structure and reactions of organic compounds. Three hours lecture per week.

**Prerequisites:** CHEM 2410 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**CHEM 2430 Recitation For Organic Chemistry I**

[1 credit hour]

Optional recitation sections that discuss concepts and solve practice questions in CHEM2410.

**Prerequisites:** CHEM 1240 with a minimum grade of C-

**Term Offered:** Spring, Fall

**CHEM 2440 Recitation For Organic Chemistry II**

[1 credit hour]

Optional recitation sections that discuss concepts and solve practice questions in CHEM2420.

**Prerequisites:** CHEM 2410 with a minimum grade of C-

**Term Offered:** Spring, Fall

**CHEM 2460 Organic Chemistry Laboratory I for Non-Majors**

[1 credit hour]

Practice of organic laboratory techniques. Four hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting. This course is for students in majors other than chemistry or biochemistry. Chemistry (BS, BA) or biochemistry majors (BS) should take CHEM 2480.

**Prerequisites:** (CHEM 1240 with a minimum grade of C- and CHEM 1290 with a minimum grade of C-) and CHEM 2410 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**CHEM 2470 Organic Chemistry Laboratory II for Non-Majors**

[1 credit hour]

Practice of organic laboratory techniques. Four hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting. This course is for students in majors other than chemistry or biochemistry. Chemistry (BS, BA) or biochemistry majors (BS) should take CHEM 2490.

**Prerequisites:** CHEM 2460 with a minimum grade of C- and CHEM 2420 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**CHEM 2480 Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis**

[0-2 credit hours]

For Chemistry/Biochemistry majors. Introduction to theory and laboratory practice in modern methods of physical separation techniques, and introduction to organic synthetic methods. Special emphasis is made on spectroscopic techniques used in the organic laboratory. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** CHEM 1240 with a minimum grade of C- and CHEM 1290 with a minimum grade of C- and CHEM 2410 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Fall**CHEM 2490 Organic Chemistry Laboratory II for Majors: Synthesis and Identification**

[2 credit hours]

For Chemistry/Biochemistry majors. Application of synthetic methods to elementary organic synthesis with special emphasis on instrumental approaches to problem solving in organic chemistry. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** (CHEM 2410 with a minimum grade of C- and CHEM 2480 with a minimum grade of C-) and CHEM 2420 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring**CHEM 2500 Instrumental Methods For Organic Chemistry**

[0-2 credit hours]

A bridge course for students wishing to major in chemistry or biochemistry at the B.S. level after taking the organic non-major lab sequence. Introduction to major instrumental methods employed in the organic laboratory. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** (CHEM 2420 with a minimum grade of C- and CHEM 2470 with a minimum grade of C-)

**Term Offered:** Spring, Summer, Fall**CHEM 2910 Undergraduate Research I**

[1-3 credit hours]

An introduction to research under the guidance of a faculty member. May be repeated. A maximum accumulated credit of 4 hours in 2910 and total of 10 hours in 2910, 3910, 4910 may be applied toward a degree. May be taken only as P/NC.

**Prerequisites:** CHEM 1240 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall**CHEM 2920 Readings In Chemistry**

[1-2 credit hours]

Readings from the literature of chemistry. May be taken only as P/NC.

**Term Offered:** Spring, Summer, Fall**CHEM 3100 Fundamentals of Scientific Glassblowing**

[1 credit hour]

An introduction to flame working techniques for the manipulation of glass for chemistry and biochemistry majors. Hands-on techniques for developing skills for artistic and scientific glass design, creation and repair. May be taken only as P/NC.

**Prerequisites:** CHEM 2480 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring, Fall**CHEM 3310 Analytical Chemistry**

[2 credit hours]

Theory and applications of chemical equilibria to gravimetric, volumetric and separation techniques. Emphasis on the quantitative aspects of analytical chemistry. Two hours lecture per week.

**Prerequisites:** CHEM 1240 with a minimum grade of C-

**Term Offered:** Fall**CHEM 3360 Analytical Chemistry Laboratory**

[2 credit hours]

Practice of quantitative analytical methods of analysis. Six hours laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** (CHEM 3310 with a minimum grade of C- and CHEM 1290 with a minimum grade of C-)

**Term Offered:** Spring**CHEM 3510 Biochemistry I**

[3 credit hours]

The chemistry of living systems, beginning with the structures and molecular and biological functions of proteins, nucleic acids, carbohydrates and lipids. Other topics include enzyme kinetics and mechanism, biological membranes and membrane transport, and signal transduction.

**Prerequisites:** CHEM 2420 with a minimum grade of C-

**Term Offered:** Summer, Fall**CHEM 3520 Biochemistry II**

[3 credit hours]

Continuing study of the chemistry of living systems. Topics include the metabolism of carbohydrates, lipids and amino acids, energy transductions and photosynthesis, mechanisms and regulation of nucleic acid and protein synthesis.

**Prerequisites:** CHEM 3510 with a minimum grade of C-

**Term Offered:** Spring**CHEM 3560 Biochemistry Laboratory**

[2 credit hours]

Practice of biochemistry laboratory techniques. Six hours of laboratory per week.

**Prerequisites:** CHEM 3510 with a minimum grade of C-

**Term Offered:** Spring**CHEM 3610 Inorganic Chemistry I**

[3 credit hours]

The application of modern theories to the elements and their inorganic compounds. Physical chemical principles are used throughout.

**Prerequisites:** CHEM 2420 with a minimum grade of C- or CHEE 2230 with a minimum grade of C- and CHEE 2330 with a minimum grade of C-

**Term Offered:** Spring



**CHEM 3710 Physical Chemistry For The Biosciences I**

[3 credit hours]

Physical and mathematical laws applied to chemistry with examples from biologically important processes. No credit given if Chemistry 3730-3740 are taken.

**Prerequisites:** (MATH 1860 with a minimum grade of D- and PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of D- and PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D-) or (MATH 1860 with a minimum grade of D- and PHYS 2130 with a minimum grade of D-) or (MATH 1860 with a minimum grade of D- and PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-)

**Corequisites:** CHEM 3712**Term Offered:** Fall**CHEM 3712 Recitation for Chem 3710**

[1 credit hour]

Recitation section that discusses concepts and solves practice questions for CHEM 3710. Must be taken simultaneously with CHEM 3710. Not for major/minor credit.

**Prerequisites:** CHEM 2420 with a minimum grade of D- and CHEM 3710 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Fall**CHEM 3720 Physical Chemistry For The Biosciences II**

[3 credit hours]

Physical and mathematical laws applied to chemistry with examples from biologically important processes. No credit given if Chemistry 3730-3740 are taken.

**Prerequisites:** CHEM 3710 with a minimum grade of D-

**Corequisites:** CHEM 3722**Term Offered:** Spring**CHEM 3722 Recitation For Chem 3720**

[1 credit hour]

Optional recitation section that discusses concepts and solves practice questions for CHEM 3720. Must be taken simultaneously with CHEM 3720. Not for major/minor credit.

**Prerequisites:** CHEM 3710 with a minimum grade of C- and CHEM 3720 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring**CHEM 3730 Physical Chemistry I**

[3 credit hours]

Fundamental theories and basic laws of chemistry with emphasis on their mathematical development. Thermodynamics, equilibrium, electrochemistry, classical chemical kinetics.

**Prerequisites:** CHEM 1240 with a minimum grade of C- and PHYS 2140 with a minimum grade of C- and PHYS 2145 with a minimum grade of C- and (MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-)

**Term Offered:** Fall**CHEM 3732 Recitation for Chem 3730**

[1 credit hour]

Optional recitation section that discusses concepts and solves practice questions for CHEM 3730. Must be taken simultaneously with CHEM 3730, Physical Chemistry I. Not for major/minor credit.

**Prerequisites:** CHEM 2420 with a minimum grade of C- and CHEM 3730 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Fall**CHEM 3740 Physical Chemistry II**

[3 credit hours]

Fundamental theories and basic laws of chemistry with emphasis on their mathematical development. Structure of matter, statistical and quantum mechanics, reaction dynamics, spectroscopy.

**Prerequisites:** CHEM 3730 with a minimum grade of C- or CHEE 2230 with a minimum grade of C- and CHEE 2330 with a minimum grade of C-

**Term Offered:** Spring**CHEM 3742 Recitation For Chem 3740**

[1 credit hour]

Optional recitation section that discusses concepts and solves practice questions for CHEM 3740. Must be taken simultaneously with CHEM 3740, Physical Chemistry II. Not for major/minor credit.

**Prerequisites:** CHEM 3730 with a minimum grade of C- and CHEM 3740 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring**CHEM 3810 Chemistry of Sustainable Energy Resources**

[3 credit hours]

Application of the principles of chemistry to understand the issues related to implementing and optimizing a sustainable supply of energy.

**Prerequisites:** CHEM 1240 with a minimum grade of C- and CHEM 1290 with a minimum grade of C- and PHYS 3400 with a minimum grade of C-

**Term Offered:** Spring, Fall**CHEM 3860 Advanced Laboratory I**

[0-2 credit hours]

Laboratory experiments and techniques relating to subjects developed in CHEM 3710, 3730, or 4570. Three-hour laboratory and one-hour discussion per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** (CHEM 2420 with a minimum grade of C- and CHEM 2470 with a minimum grade of C-) or CHEM 2490 with a minimum grade of C- and (CHEM 3710 (may be taken concurrently) with a minimum grade of C- or CHEM 3730 (may be taken concurrently) with a minimum grade of C- or CHEM 4570 (may be taken concurrently) with a minimum grade of C-)

**Term Offered:** Fall**CHEM 3870 Advanced Laboratory II**

[2 credit hours]

Laboratory experiments and techniques relating to subjects developed in 3710/3720, 3730/3740. Six hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** CHEM 3860 with a minimum grade of C- and (CHEM 3740 (may be taken concurrently) with a minimum grade of C- or CHEM 3720 (may be taken concurrently) with a minimum grade of C-)

**Term Offered:** Spring**CHEM 3910 Undergraduate Research II**

[1-3 credit hours]

Research under the guidance of a faculty member. A written report is required. May be repeated. A maximum accumulated credit of 10 hours in CHEM 2910, 3910 and 4910 may be applied toward a degree. May be taken only as P/NC.

**Prerequisites:** CHEM 2420 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**CHEM 3920 Readings In Chemistry II**

[1-2 credit hours]

Readings from the literature of chemistry. May be taken only as P/NC.

**Term Offered:** Spring, Summer, Fall**CHEM 4200 Green Chemistry**

[3 credit hours]

Introduction to the principles and applications of green chemistry, including industrial applications, atom economy, safer solvent substitutions, chemical alternatives assessment, green chemistry metrics, basic life cycle assessment, and an introduction to chemical toxicology. Students need CHEM 2420 or permission of instructor.

**Prerequisites:** CHEM 2420 with a minimum grade of D-**CHEM 4210 Environmental Chemistry**

[3 credit hours]

This course will focus on the chemistry of air, water, and soil with specific emphasis on the effects of human made chemical products and byproducts on the environment. Connections with green chemistry will be highlighted. Students need CHEM 2420 or permission of instructor.

**Prerequisites:** CHEM 2420 with a minimum grade of D-**CHEM 4300 Instrumental Analysis**

[2 credit hours]

An introduction to modern chemical instrumentation and applications to chemical analysis. Topics include electrical, magnetic, nuclear and spectroscopic instrumentation.

**Prerequisites:** (CHEM 3310 with a minimum grade of C- and CHEM 3360 with a minimum grade of C-) and CHEM 3710 (may be taken concurrently) with a minimum grade of C- or CHEM 3730 (may be taken concurrently) with a minimum grade of C- or CHEM 4570 (may be taken concurrently) with a minimum grade of C- or CHEE 2230 (may be taken concurrently) with a minimum grade of C-**Term Offered:** Fall**CHEM 4305 Advanced Analytical Chemistry**

[4 credit hours]

An overview of new techniques in analytical chemistry. Topics include sample preparation and sampling, spectroscopic, separation, electrochemical, surface characterization and thermal methods.

**Prerequisites:** CHEM 3310 with a minimum grade of C**Term Offered:** Fall**CHEM 4310 Separation Methods**

[3 credit hours]

The theory, design and application of separation methods. Topics include extraction techniques, gas, liquid, and supercritical fluid chromatography, affinity and chiral separation, and capillary electrophoresis.

**Prerequisites:** CHEM 3310 with a minimum grade of C or CHEM 4300 with a minimum grade of C**Term Offered:** Spring**CHEM 4320 Electrochemistry**

[4 credit hours]

A fundamental study of electrochemical concepts, methods, instrumentation and applications.

**Prerequisites:** CHEM 4300 with a minimum grade of C**Term Offered:** Spring**CHEM 4330 Spectroscopic Methods**

[4 credit hours]

A comprehensive study of theory and instrumentation. Applications of spectroscopic methods including spectral interpretation. Topics include a study of absorption, emission, Raman, NMR, ESR, mass spectrometry, and related subjects. Important methodology and strategy in organic synthesis including disconnection and retrosynthetic analysis.

**Prerequisites:** CHEM 2410 with a minimum grade of C**Term Offered:** Spring**CHEM 4340 Mass Spectrometry**

[4 credit hours]

The principles and applications of mass spectrometry in chemistry, biochemistry, and related disciplines.

**Prerequisites:** CHEM 4300 with a minimum grade of D-**Term Offered:** Spring**CHEM 4350 Separation Methods Laboratory**

[1 credit hour]

Experiments covering topics discussed in CHEM 4310 lectures. Five hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard 287.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** (CHEM 3310 with a minimum grade of C and CHEM 3360 with a minimum grade of C) or (CHEM 4300 with a minimum grade of C and CHEM 4880 with a minimum grade of C)**Corequisites:** CHEM 4310**Term Offered:** Spring**CHEM 4400 Advanced Organic Chemistry**

[4 credit hours]

This course deals with chemical structure and reactivity correlations applied to the study of organic reaction mechanisms; stereochemical features including conformation and stereoelectronic effects; reaction dynamics, isotope effects and molecular orbital theory applied to pericyclic and photochemical reactions; and special reactive intermediates including carbenes, carbanions, and free radicals.

**Prerequisites:** CHEM 2420 with a minimum grade of B**Term Offered:** Fall**CHEM 4410 Organic Synthesis**

[4 credit hours]

Important methodology and strategy in organic synthesis including disconnection and retrosynthetic analysis.

**Term Offered:** Spring**CHEM 4430 Medicinal Chemistry**

[4 credit hours]

Qualitative and quantitative aspects of the design of new therapeutic agents are discussed. Approaches to the design of drugs and new therapeutic modalities directed at enzymes, receptors, membrane transport proteins and nucleic acids will be examined.

**Term Offered:** Fall**CHEM 4500 Advanced Biological Chemistry**

[4 credit hours]

The chemistry of cellular and molecular transformations in biochemical systems. Molecular structure of proteins, nucleic acids and membranes. Metabolism and biosynthesis of carbohydrates, amino acids and lipids; gene regulation and replication.

**Prerequisites:** CHEM 3520 with a minimum grade of C-**Term Offered:** Fall

**CHEM 4510 Protein Chemistry**

[4 credit hours]

A detailed analysis of the structure and function of proteins. Current methodology for the analysis of structure, the basis for molecular associations and relationships between structure and biological function.

**Prerequisites:** CHEM 3510 with a minimum grade of C-**Term Offered:** Spring**CHEM 4520 Enzymology**

[4 credit hours]

Survey of current methods to study enzyme-catalyzed reactions, and application to examples from major enzyme groups. Current topics in enzymology include abzymes and ribozymes, artificial enzymes, and enzymes, and enzyme engineering.

**Prerequisites:** CHEM 3510 with a minimum grade of C-**Term Offered:** Spring**CHEM 4560 Biophysical Chemistry Laboratory - WAC**

[2 credit hours]

Data Analysis of modern biophysical measurements related to the topics discussed in CHEM 4570 (Biophysical Chemistry), an introduction to scientific writing, and the preparation of scientific manuscripts. Six hours of laboratory per week.

**Prerequisites:** CHEM 3520 with a minimum grade of C-**CHEM 4570 Biophysical Chemistry**

[4 credit hours]

Principles and applications of physical chemistry as applied to biological macromolecules (i.e., proteins and nucleic acids in solution), including thermodynamics, kinetics and spectroscopy of macromolecular interactions.

**Prerequisites:** (PHYS 2080 with a minimum grade of C- and PHYS 2085 with a minimum grade of C- or PHYS 2140 with a minimum grade of C- and PHYS 2145 with a minimum grade of C-) and CHEM 3520 with a minimum grade of C-**Term Offered:** Fall**CHEM 4580 Bioinorganic Chemistry**

[4 credit hours]

Survey of biologically important metals and metal-ligand complexes, and the role of metal ions in proteins, metal ion transport and regulation, and metals in medicine.

**Prerequisites:** CHEM 3520 with a minimum grade of C-**CHEM 4600 Physical Inorganic Chemistry**

[4 credit hours]

Symmetry, bonding theories, magnetism, and spectroscopic characterization of inorganic compounds are described. Coverage of spectroscopic techniques such as NMR, EPR, UV/VIS, IR, AND Mossbauer focus on applications to inorganic systems.

**Prerequisites:** CHEM 3610 with a minimum grade of C**Term Offered:** Fall**CHEM 4610 Chemistry of the Transition and Post-Transition Elements**

[4 credit hours]

The organometallic chemistry of the transition metals, lanthanides and actinides is described. Synthesis, structure, bonding, and reactivity are considered. Applications in catalysis, bioinorganic, and materials chemistry are discussed.

**Prerequisites:** CHEM 3610 with a minimum grade of C**Term Offered:** Fall**CHEM 4625 Chemistry of Main Group Elements**

[4 credit hours]

The inorganic and organometallic chemistry of main group elements is described. Synthesis, structure, bonding, and reactivity are considered. The use of main group reagents in synthesis, catalysis, and materials chemistry are discussed.

**Prerequisites:** CHEM 3610 with a minimum grade of C**Term Offered:** Spring**CHEM 4710 Quantum Chemistry and Spectroscopy**

[4 credit hours]

Fundamental principles of quantum mechanics and their application to model systems, atoms and molecules; Introduction to molecular spectroscopy.

**Term Offered:** Spring**CHEM 4720 Modern Topics in Physical Chemistry**

[4 credit hours]

Advanced topics of current interest in physical chemistry. Examples of topics include nanomaterials science, spectroscopic techniques, or molecular modeling.

**Prerequisites:** CHEM 3740 with a minimum grade of C- or CHEM 3730 with a minimum grade of C-**Term Offered:** Spring**CHEM 4800 Advanced Materials Chemistry**

[4 credit hours]

Introduction to important classes of solids, including conductors, magnetic materials, ferroelectrics, glasses, microporous materials, organic solids. Traditional and novel synthetic approaches, structure/property relationships, and characterization methods specific to solids.

**Prerequisites:** CHEM 3740 with a minimum grade of C**Term Offered:** Spring**CHEM 4810 Materials Science I**

[4 credit hours]

A generic materials science approach to the study of crystalline structure and defects (point, line and planar) in crystalline materials. The mechanisms and kinetics of diffusion in the condensed state.

**Term Offered:** Fall**CHEM 4820 Materials Science II**

[4 credit hours]

A materials science approach to the thermodynamics of condensed state equilibria. Phase transformation kinetics.

**Term Offered:** Spring

**CHEM 4830 Nanomaterials Science**

[4 credit hours]

This course is intended to serve as an introduction to nanomaterials science for non-specialists. It is accessible to upper division students in any technical major, including chemists, physicists, and engineers. The fundamentals of nanomaterials science and nanotechnology will be covered, including the origin of nanoscale properties, synthesis and characterization of nanomaterials (e.g. colloids, nanoparticles, nanowires, nanotubes, DNA-based structures), fabrication of larger-scale structures (e.g. self assembly, lithography), and characterization techniques (e.g. microscopy, microanalysis, spectroscopy). Applications will also be discussed.

**Prerequisites:** CHEM 1240 with a minimum grade of C- and (MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-) and PHYS 2140 with a minimum grade of C-

**Term Offered:** Spring, Fall

**CHEM 4850 X-Ray Crystallography**

[4 credit hours]

Theory and practice of structure determination by X-ray diffraction. Basics of symmetry, diffraction, and reciprocal space. Hands-on introduction to single-crystal and powder methods.

**Prerequisites:** MATH 1840 with a minimum grade of C or MATH 1860 with a minimum grade of C

**Term Offered:** Fall

**CHEM 4880 Advanced Laboratory III**

[2 credit hours]

Laboratory experiments and techniques relating to subjects developed in CHEM 4300. Six hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** (CHEM 3860 (may be taken concurrently) with a minimum grade of C- or CHEM 4560 (may be taken concurrently) with a minimum grade of C-) or CHEM 3360 with a minimum grade of C- and CHEM 4300 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Fall

**CHEM 4910 Undergraduate Research III**

[1-3 credit hours]

Thesis level research under the guidance of a faculty member. May be repeated. A minimum of three hours and an acceptable thesis required for credit toward the B.S. major. A maximum accumulated credit of 10 hours in CHEM 2910, 3910 and 4910 may be applied toward a degree. A written report is required. May be taken only as P/NC. Prerequisite: GPA (overall and in chemistry courses) above 2.5 and permission of department  
Corequisite: CHEM 3740 or 4570

**Prerequisites:** CHEM 3740 (may be taken concurrently) with a minimum grade of C- or CHEM 4570 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**CHEM 4920 Readings In Chemistry III**

[1-2 credit hours]

Readings from the literature of chemistry. May be taken only as P/NC.

**Term Offered:** Spring, Summer, Fall

**CHEM 4980 Special Topics In Chemistry**

[2-4 credit hours]

An advanced course for chemistry majors in an important area of chemistry. Consult the undergraduate adviser for details. Course may be repeated for credit under different specialty numbers (topics).

**Prerequisites:** (CHEM 2420 with a minimum grade of C- and CHEM 3740 with a minimum grade of C-)

**Term Offered:** Spring, Fall

**Qualified students may be invited to work for the citation "honors in chemistry or biochemistry."**

- Admission:** The honors program is open to all chemistry or biochemistry majors studying toward the B.S. degree and to other students with the consent of the departmental honors advisor and the Chair of the department. The program may be undertaken concurrently with University Honors. Admission to the departmental Honors Program is based on academic standing, recommendations by instructors and an interview with the departmental honors advisor. A minimum overall GPA of 3.3 and a minimum GPA of 3.5 in chemistry course work are required for admission and to maintain good standing in the honors program. Any student may petition the departmental honors advisor for admission to the program. A student should normally begin the program no later than the end of the sophomore year.
- Requirements:** In addition to the credits required to complete the major, each honors student must satisfactorily complete CHEM 4910 with a written thesis and an oral research report upon completion of the research project. A minimum of six hours of the required chemistry courses at the 3000 and 4000 levels, in addition to CHEM 4910 must be taken for honors. These courses must be in at least two different areas of chemistry, to be selected from among analytical chemistry, biochemistry, inorganic chemistry, organic chemistry and physical chemistry. The instructor in each of these courses will plan activities above the normal requirements of the course for the honors student, in line with the aims of the Honors Program, to encourage independent scholarship. Outside reading and writing may be important components of each Honors course assignment. Students enrolled in the departmental Honors Program also are encouraged to participate in the department's colloquium program. In order to graduate with departmental honors, a minimum overall GPA of 3.3 and a minimum GPA of 3.5 in chemistry course work must be earned.

## BS in Biochemistry

The Bachelor of Science (B.S.) degree in biochemistry is the professional degree in the field of biochemistry and requires a minimum of 120 hours of course work and upon completion, students meet the minimum standards of the American Chemical Society as specified by its Committee on Professional Training. Degree recipients are therefore certified by the American Chemical Society and are eligible for full membership in the world's largest scientific society.

Biochemistry majors focus on the intersection of the fields of biology and chemistry to study living organisms at the cellular and molecular levels. It is easy to see how biochemistry applies to biological problems such as medicine and understanding diseases, but biochemistry is central to many other fields, as well, including agriculture (fertilizers, pesticides

and herbicides), food science (food safety and preservation, and flavor chemistry), cosmetics, and forensics (DNA analysis).

The B.S. degree in Biochemistry provides students with a strong foundation

- in the traditional subdisciplines of chemistry- analytical, biochemistry, inorganic, organic, and physical- with the B.S. degree in biochemistry having a more biological chemistry related focus
- in laboratory skills emphasizing hands-on training with advanced instrumentation in modern facilities
- in research working with faculty on projects that span the entire field of chemistry and biochemistry

Prepares students to

- continue their studies in graduate school toward the Masters or Ph.D. in chemistry or biochemistry
- enter professional programs such as law, business, medicine, and forensic or veterinary science
- gain employment with significant responsibility in laboratories in the chemical, pharmaceutical, biotech, clinical and allied professional industries.

Students pursuing a chemistry or biochemistry major may not elect the P/NC option in major or related courses, or prerequisites for these courses, except as noted in specific course descriptions. Students pursuing a BS/BA in Biochemistry cannot double major with a BS/BA in Chemistry, or minor in Chemistry. The minor in Green Chemistry and Engineering or the certificate in Analytical Chemistry are permitted.

**For the bachelor of science degree in biochemistry**, 49 hours of CHEM courses are required. The following required courses must be included:

CHEM 1230 General Chemistry I  
 CHEM 1240 General Chemistry II  
 CHEM 1280 General Chemistry Lab I  
 CHEM 1290 General Chemistry Lab II  
 CHEM 2410 Organic Chemistry I  
 CHEM 2420 Organic Chemistry II  
 CHEM 2480 Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis  
 CHEM 2490 Organic Chemistry Laboratory II for Majors: Synthesis and Identification  
 CHEM 3310 Analytical Chemistry  
 CHEM 3360 Analytical Chemistry Laboratory  
 CHEM 3510 Biochemistry I  
 CHEM 3520 Biochemistry II  
 CHEM 3560 Biochemistry Laboratory  
 CHEM 3610 Inorganic Chemistry I  
 CHEM 4300 Instrumental Analysis  
 CHEM 4560 Biophysical Chemistry Laboratory - WAC  
 CHEM 4570 Biophysical Chemistry  
 One advanced laboratory: (CHEM 3910, CHEM 4880, or CHEM 4910)  
 One advanced biochemistry course: (CHEM 4500, CHEM 4510, CHEM 4520, CHEM 4530, CHEM 4580, or CHEM 4980 (with a biochemistry focus))

The following related courses are also required:

MATH 1750 and MATH 1760, MATH 1830 and MATH 1840, or MATH 1850 and MATH 1860 (Calculus I and II)  
 PHYS 2070 & PHYS 2075 and PHYS 2080 & PHYS 2085, or PHYS 2130 & PHYS 2135 and PHYS 2140 & PHYS 2145 (Physics I and II and labs)  
 BIOL 2170 and BIOL 3030 (Fundamentals of Life Science: Biomolecules, Cells, and Inheritance and Cell Biology)

A minimum cumulative GPA of 2.5 in chemistry is required for graduation with this degree.

Below is a plan of study. Consult your degree audit for your program requirements.

First Term		Hours
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
Select one of the following:		4
MATH 1750	Calculus For The Life Sciences With Applications I	
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	
MATH 1850	Single Variable Calculus I	
ENGL 1110	College Composition I	3
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
Arts/Humanities Core		3
		<b>Hours</b>
		<b>17</b>
Second Term		Hours
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
CHEM 1910	Survey Of Research	1
Select one of the following:		3-4
MATH 1760	Calculus For The Life Sciences With Applications II	
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	
MATH 1860	Single Variable Calculus II	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Social Sciences Core		3
		<b>Hours</b>
		<b>15-16</b>
Third Term		Hours
CHEM 2410	Organic Chemistry I	3
CHEM 2480	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis	2
CHEM 3310	Analytical Chemistry	2
Select one of the following sets:		5
PHYS 2070	General Physics I	
PHYS 2075	General Physics I - Lab	
OR		
PHYS 2130	Physics For Science And Engineering Majors I	

PHYS 2135	Physics for Science and Engineering Majors I - Lab	
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
CHEM 2420	Organic Chemistry II	3
CHEM 2490	Organic Chemistry Laboratory II for Majors: Synthesis and Identification	2
CHEM 3360	Analytical Chemistry Laboratory	2
Select one of the following sets		5
PHYS 2080	General Physics II	
PHYS 2085	General Physics II - Lab	
OR		
PHYS 2140	Physics For Science And Engineering Majors II	
PHYS 2145	Physics for Science and Engineering Majors II - Lab	
Social Sciences Core		3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
CHEM 3510	Biochemistry I	3
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
Diversity of US		3
Elective		6
<b>Hours</b>		<b>16</b>
<b>Sixth Term</b>		
CHEM 3520	Biochemistry II	3
CHEM 3910	Undergraduate Research II	1
CHEM 3560	Biochemistry Laboratory	2
CHEM 3610	Inorganic Chemistry I	3
BIOL 3030	Cell Biology	3
Non-US Diversity		3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
CHEM 4570	Biophysical Chemistry	4
CHEM 4300	Instrumental Analysis	2
CHEM 4560	Biophysical Chemistry Laboratory - WAC	2
Select one of the following:		2
CHEM 3910	Undergraduate Research II	
CHEM 4910	Undergraduate Research III	
CHEM 4880	Advanced Laboratory III	
Elective or select one of the following: <sup>1</sup>		3-4
CHEM 4500	Advanced Biological Chemistry	
or select one advanced biochemistry course in spring semester		
<b>Hours</b>		<b>13-14</b>
<b>Eighth Term</b>		
Elective or one advanced biochemistry course if not taken in the fall: <sup>1</sup>		3-4

CHEM 4510	Protein Chemistry	
CHEM 4520	Enzymology	
CHEM 4530		
CHEM 4580	Bioinorganic Chemistry	
CHEM 4980	Special Topics In Chemistry	
Electives to reach 120 hours		11-12
<b>Hours</b>		<b>14-16</b>
<b>Total Hours</b>		<b>120-124</b>

<sup>1</sup> Listed twice because courses offered in different semesters; only need one course.

See course catalog for pre- and co-requisites.

Courses which satisfy the College and University degree requirements can be determined by running a degree audit and looking at the list of courses presented as satisfying the requirement. Always try to take courses in which you have an interest.

- PLO1. Demonstrate a mastery of foundational concepts in math, physics and chemistry.
- PLO 2. Demonstrate a mastery of concepts in biochemistry and biology, including energy transduction in living systems, macromolecular structure and function, and biological information storage and flow, and the importance of evolution and homeostasis.
- PLO 3. Make observations, formulate hypotheses, understand the conceptual basis and practical application of fundamental biochemical and molecular biological laboratory techniques and instrumentation, design and carry out experiments, analyze and interpret data, and use equations, models and statistics to test and apply these concepts.
- PLO 4. Communicate technical information clearly and accurately in written, oral and visual formats.
- PLO 5. Locate and use information in the primary literature and research databases.
- PLO 6. Critically read, assess, and evaluate scientific publications, presentations and data.
- PLO 7. Understand and observe proper safety, ethical, and professional practices.
- PLO 8. Apply the concepts and practices of chemistry and biochemistry to areas outside the laboratory, including health and policy issues.

## BS in Chemistry

The Bachelor of Science (B.S.) degree in Chemistry is the professional degree in the field of chemistry and requires a minimum of 120 hours of course work and upon completion, students meet the minimum standards of the American Chemical Society as specified by its Committee on Professional Training. Degree recipients are therefore certified by the American Chemical Society and are eligible for full membership in the world's largest scientific society. The bachelor program in chemistry at UToledo has been continuously certified for over 70 years.

Chemistry majors study the properties, composition and structure of matter- and how matter changes and impacts everyday life. Chemistry is considered a cornerstone of the natural sciences and can lead to a wide range of careers in many different and diverse fields.

The B.S. degree in Chemistry provides students with a strong foundation

- in the traditional subdisciplines of chemistry- analytical, biochemistry, inorganic, organic, and physical
- in laboratory skills emphasizing hands-on training with advanced instrumentation in modern facilities
- in research working with faculty on projects that span the entire field of chemistry and biochemistry

Prepares students to

- continue their studies in graduate school toward the Masters or Ph.D. in chemistry or biochemistry
- enter professional programs such as law, business, medicine, and forensic or veterinary science
- gain employment with significant responsibility in laboratories in the chemical, pharmaceutical, biotech, clinical and allied professional industries.

Students pursuing a chemistry or biochemistry major may not elect the P/NC option in major or related courses, or prerequisites for these courses, except as noted in specific course descriptions. Students pursuing a BS/BA in Chemistry cannot double major with a BS/BA in Biochemistry, or minor in Chemistry. The minor in Green Chemistry and Engineering or the certificate in Analytical Chemistry are permitted.

- Chemistry , BS
- Chemistry – Materials Chemistry Concentration, BS

**For the bachelor of science degree in chemistry** 44 hours of CHEM courses are required.

The following courses must be included:

CHEM 1230 General Chemistry I  
 CHEM 1240 General Chemistry II  
 CHEM 1280 General Chemistry Lab I  
 CHEM 1290 General Chemistry Lab II  
 CHEM 2410 Organic Chemistry I  
 CHEM 2420 Organic Chemistry II  
 CHEM 2480 Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis  
 CHEM 2490 Organic Chemistry Laboratory II for Majors: Synthesis and Identification  
 CHEM 3310 Analytical Chemistry  
 CHEM 3360 Analytical Chemistry Laboratory  
 CHEM 3510 Biochemistry I  
 CHEM 3610 Inorganic Chemistry I  
 CHEM 3730 Physical Chemistry I  
 CHEM 3740 Physical Chemistry II  
 CHEM 3860 Advanced Laboratory I  
 CHEM 3870 Advanced Laboratory II  
 CHEM 4300 Instrumental Analysis  
 CHEM 4880 Advanced Laboratory III

Optional advanced chemistry courses include any other 3000 or 4000 level CHEM courses *except* the following:CHEM 3712 CHEM 3722, CHEM 3732, CHEM 3742, CHEM 3910, CHEM 3920, and CHEM 4920

The following related courses are also required:

MATH 1830 and MATH 1840, or MATH 1850 and MATH 1860 (Calculus I and II); MATH 2850 Elementary Multivariable Calculus  
 PHYS 2130 , PHYS 2135 , PHYS 2140 and PHYS 2145 (Physics I and II, plus labs)

A minimum cumulative GPA of 2.5 in chemistry courses is required for graduation with this degree.

## Chemistry – Materials Chemistry Concentration, BS

**For the bachelor of science degree in chemistry - materials chemistry concentration** 59 hours of CHEM courses are required.

The following courses must be included:

CHEM 1230 General Chemistry I  
 CHEM 1240 General Chemistry II  
 CHEM 1280 General Chemistry Lab I  
 CHEM 1290 General Chemistry Lab II

CHEM 2410 Organic Chemistry I  
 CHEM 2420 Organic Chemistry II  
 CHEM 2480 Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis  
 CHEM 2490 Organic Chemistry Laboratory II for Majors: Synthesis and Identification

CHEM 3310 Analytical Chemistry  
 CHEM 3360 Analytical Chemistry Laboratory

CHEM 3610 Inorganic Chemistry I  
 CHEM 3730 Physical Chemistry I  
 CHEM 3740 Physical Chemistry II

CHEM 3860 Advanced Laboratory I  
 CHEM 3870 Advanced Laboratory II

CHEM 4810 Materials Science I  
 CHEM 4820 Materials Science II

Two of:

CHEM 4800 Advanced Materials Chemistry  
 CHEM 4830 Nanomaterials Science  
 CHEE 4800 Polymer Science And Engineering

Two of:

CHEM 3810 Chemistry of Sustainable Energy Resources  
 CHEM 4200 Green Chemistry  
 CHEM 4600 Physical Inorganic Chemistry  
 CHEM 4625 Chemistry of Main Group Elements  
 CHEM 4850 X-Ray Crystallography

Optional advanced chemistry courses include any other 3000 or 4000 level CHEM courses *except* the following:CHEM 3712CHEM 3722, CHEM 3732, CHEM 3742, CHEM 3910, CHEM 3920, and

The following related courses are also required:

MATH 1850 and MATH 1860 (Calculus I and II); MATH 2850 Elementary Multivariable Calculus  
 PHYS 2130 and PHYS 2135 and PHYS 2140 and PHYS 2145 (Physics I and II)

A minimum cumulative GPA of 2.5 in chemistry courses is required for graduation with this degree.

Below is a sample plan of study. Consult your degree audit for your program requirements.

- Chemistry , BS (p. 399)
- Chemistry – Materials Chemistry Concentration, BS (p. 399)

<b>First Term</b>		<b>Hours</b>
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
Choose one of the following		4
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	
MATH 1850	Single Variable Calculus I	
ENGL 1110	College Composition I	3
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
Arts/Humanities Core		3
<b>Hours</b>		<b>17</b>
<b>Second Term</b>		
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
Choose one of the following		4
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	
MATH 1860	Single Variable Calculus II	
CHEM 1910	Survey Of Research	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Social Sciences Core		3
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
CHEM 2410	Organic Chemistry I	3
CHEM 2480	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis	2
MATH 2850	Elementary Multivariable Calculus	4
CHEM 3310	Analytical Chemistry	2
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
CHEM 2420	Organic Chemistry II	3
CHEM 2490	Organic Chemistry Laboratory II for Majors: Synthesis and Identification	2

CHEM 3360	Analytical Chemistry Laboratory (WAC)	2
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
Social Sciences Core		3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
CHEM 3510	Biochemistry I	3
CHEM 3730	Physical Chemistry I	3
CHEM 3860	Advanced Laboratory I (WAC)	2
CHEM 3910	Undergraduate Research II	1
Multicultural Non-US Diversity		3
Social Science Core elective		3
<b>Hours</b>		<b>15</b>
<b>Sixth Term</b>		
CHEM 3610	Inorganic Chemistry I	3
CHEM 3740	Physical Chemistry II	3
CHEM 3870	Advanced Laboratory II	2
CHEM 3910	Undergraduate Research II	1
Multicultural Diversity of US		3
Elective		3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
CHEM 4300	Instrumental Analysis	2
CHEM 4880	Advanced Laboratory III	2
CHEM 4910	Undergraduate Research III	1
Choose One of the Following		3-4
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	
EEES 2010	Introduction To Environmental Studies	
EEES 2100	Fundamentals Of Geology	
EEES 2150	Biodiversity	
Electives		6
<b>Hours</b>		<b>14-15</b>
<b>Eighth Term</b>		
Art/Humanities Core		3
Electives - to reach 120 hours		9
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120-121</b>

See course catalog for pre- and co-requisites.

Electives without recommendation are to be determined by the student using Banner Degree Audit program to determine which courses fulfill requirements and then by student interest of courses presented as satisfying the requirement.



## Chemistry – Materials Chemistry Concentration, BS

First Term		Hours
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 1850	Single Variable Calculus I	4
ENGL 1110	College Composition I	3
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
Arts/Humanities Core		3
<b>Hours</b>		<b>17</b>
Second Term		Hours
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
MATH 1860	Single Variable Calculus II	4
CHEM 1910	Survey Of Research	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Social Sciences Core		3
<b>Hours</b>		<b>16</b>
Third Term		Hours
CHEM 2410	Organic Chemistry I	3
CHEM 2480	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis	2
CHEM 3310	Analytical Chemistry	2
MATH 2850	Elementary Multivariable Calculus	4
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
<b>Hours</b>		<b>16</b>
Fourth Term		Hours
CHEM 2420	Organic Chemistry II	3
CHEM 2490	Organic Chemistry Laboratory II for Majors: Synthesis and Identification	2
CHEM 3360	Analytical Chemistry Laboratory (WAC)	2
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
Social Sciences Core		3
<b>Hours</b>		<b>15</b>
Fifth Term		Hours
Choose One of the Following		4
CHEM 4810	Materials Science I	
CHEM 4800	Advanced Materials Chemistry	
CHEE 4800	Polymer Science And Engineering	
CHEM 3730	Physical Chemistry I	3
CHEM 3860	Advanced Laboratory I (WAC)	2
CHEM 3910	Undergraduate Research II	1
Multicultural Non-US Diversity		3

Social Science Core elective		3
<b>Hours</b>		<b>16</b>
Sixth Term		Hours
Choose One of the Following		4
CHEM 4820	Materials Science II	
CHEM 4830	Nanomaterials Science	
CHEM 3610	Inorganic Chemistry I	3
CHEM 3740	Physical Chemistry II	3
CHEM 3870	Advanced Laboratory II	2
CHEM 3910	Undergraduate Research II	1
Multicultural Diversity of US		3
<b>Hours</b>		<b>16</b>
Seventh Term		Hours
Choose One of the Following		4
CHEM 4810	Materials Science I	
CHEM 4800	Advanced Materials Chemistry	
CHEE 4800	Polymer Science And Engineering	
CHEM 4910	Undergraduate Research III	2
Choose One of the Following		3-4
CHEM 3810	Chemistry of Sustainable Energy Resources	
CHEM 4200	Green Chemistry	
CHEM 4600	Physical Inorganic Chemistry	
CHEM 4850	X-Ray Crystallography	
Choose One of the Following		3-4
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	
EEES 2010	Introduction To Environmental Studies	
EEES 2100	Fundamentals Of Geology	
EEES 2150	Biodiversity	
<b>Hours</b>		<b>12-14</b>
Eighth Term		Hours
Choose One of the Following		4
CHEM 4820	Materials Science II	
CHEM 4830	Nanomaterials Science	
CHEM 4910	Undergraduate Research III	2
Choose One of the Following		3
CHEM 3810	Chemistry of Sustainable Energy Resources	
CHEM 4200	Green Chemistry	
CHEM 4625	Chemistry of Main Group Elements	
Art/Humanities Core		3
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120-122</b>

- PLO 1. Demonstrate a mastery of foundational concepts in mathematics and physics.
- PLO 2. Demonstrate a mastery of fundamental concepts, principles, and methods in organic, inorganic, physical, analytical

and biochemistry, including atomic and molecular structure, thermodynamics principles, chemical kinetics, chemical reactivity, and synthetic methodology.

- PLO 3. Make observations, formulate hypotheses, understand theory and application of chemical instrumentation, design and carry out experiments, analyze and interpret data, and use equations, models and statistics to test and apply these concepts.
- PLO 4. Communicate technical information clearly and accurately in written, oral and visual formats.
- PLO 5. Locate and use information in the primary literature and research databases.
- PLO 6. Critically read, assess, and evaluate scientific publications, presentations and data.
- PLO 7. Understand and observe proper safety, ethical, and professional practices.
- PLO 8. Apply the concepts and practices of chemistry to areas outside the laboratory, including societal and policy issues.

## Minor in Chemistry

The minor in chemistry is designed to complement the objectives of students in a variety of majors. A minimum of 22 hours of chemistry courses and a minimum GPA of 2.0 in those courses are required for the minor in chemistry. No courses in the minor may be taken P/NC except CHEM 4920. The following courses must be included:

Code	Title	Hours
CHEM 1230	General Chemistry I	4
CHEM 1240	General Chemistry II	4
CHEM 1280	General Chemistry Lab I	1
CHEM 1290	General Chemistry Lab II	1
CHEM 2410	Organic Chemistry I	3
CHEM 2420	Organic Chemistry II	3
Select one of the following:		2-4
CHEM 2460 & CHEM 2470	Organic Chemistry Laboratory I for Non-Majors and Organic Chemistry Laboratory II for Non-Majors	
CHEM 2480 & CHEM 2490	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis and Organic Chemistry Laboratory II for Majors: Synthesis and Identification	
Additional courses to reach 22 hours may include any 3000 or 4000 level CHEM course except the following: <sup>1</sup>		4
CHEM 3712	Recitation for Chem 3710	
CHEM 3722	Recitation For Chem 3720	
CHEM 3732	Recitation for CHEM 3730	
CHEM 3742	Recitation For Chem 3740	
CHEM 3910	Undergraduate Research II	
CHEM 3920	Readings In Chemistry II	
CHEM 4910	Undergraduate Research III	
<b>Total Hours</b>		<b>22-24</b>

<sup>1</sup> MBC 3550 and MBC 3560 may be substituted for CHEM 3510 and CHEM 3520.

## Minor in Green Chemistry & Engineering

The minor in green chemistry and engineering is designed for students who want to expand the breadth of their undergraduate majors by incorporating the principles of green chemistry and green engineering into their BA and BS degrees in chemistry, chemical engineering, environmental science or a related area. A minimum of 21 hours of course work and a minimum GPA of 2.0 in those courses are required for the minor. No courses in the minor may be taken P/NC.

Code	Title	Hours
Required Courses		
CHEM 2410	Organic Chemistry I	3
CHEM 2420	Organic Chemistry II	3
CHEM 4200	Green Chemistry	3
CHEE 4010	Green Engineering Principles <sup>1</sup>	3
Electives		
CHEM 4210 or CHEE 4110	Environmental Chemistry Green Engineering Applications	3
CHEM 3810 or CHEE 4120	Chemistry of Sustainable Energy Resources Biofuels	3
or EEES 4220	Environmental Geochemistry	
or EEES 4450	Hazardous Waste Management	
or ECON 3240	Environmental Economics	
or PSC 4340	Environmental Policy	
One additional elective from above lists		3
1) Chemical Engineering students may substitute one additional elective class in place of CHEE 4010		
<b>Total Hours</b>		<b>21</b>

Students completing the Minor in Green Chemistry and Engineering must be sure that at least 12 credit hours of the minor requirements are unique to the minor, and are not being used to satisfy requirements in the major or another minor.

## Analytical Chemistry Certificate

Code	Title	Hours
Required Courses		
CHEM 3310	Analytical Chemistry	2
CHEM 3360	Analytical Chemistry Laboratory	2
CHEM 4300	Instrumental Analysis	2
CHEM 4880	Advanced Laboratory III	2
Select Four (4) credit hours from the following course options*		4
CHEM 4310	Separation Methods	
CHEM 4350	Separation Methods Laboratory	
CHEM 4320	Electrochemistry	

CHEM 4340 Mass Spectrometry

\*CHEM 4310 and 4350 must be taken concurrently.

**Total Hours** 12

- Demonstrate an in-depth mastery of fundamental concepts, principles and hands-on laboratory methodology in the field of analytical chemistry.
- Develop skills and strategies for proper sampling, sample preparation and data analysis including accuracy, precision and error analysis.
- Understand theory and application of classical wet analytical chemistry methods in gravimetric and titrimetric analysis.
- Understand theory and application of instrumental methods focusing on spectroscopic methods, chemical separations, mass spectrometry, microscopy and electrochemistry.
- Design and conduct experimental procedures, analyze and interpret data, including models and statistical analysis to critically evaluate and interpret data.
- Communicate technical information clearly and accurately in written, oral and visual formats.
- Understand and apply proper experimental safety, ethical and professional analytical laboratory practices.

## Materials Chemistry Certificate

**For the Certificate in Materials Chemistry** 15-16 hours of CHEM/CHEE courses are required.

Code	Title	Hours
CHEM 4810	Materials Science I	4
CHEM 4820	Materials Science II	4
Select two from the following:		7-8
CHEM 4800	Advanced Materials Chemistry	
CHEM 4830	Nanomaterials Science	
CHEM 4850	X-Ray Crystallography	
CHEE 4800	Polymer Science And Engineering	
<b>Total Hours</b>		<b>15-16</b>

### First Year

First Term	Hours
CHEM 4810 Materials Science I	4
Choose One of the Following	3-4
CHEM 4850 X-Ray Crystallography	
CHEE 4800 Polymer Science And Engineering	
<b>Hours</b>	<b>7-8</b>

### Second Term

CHEM 4820 Materials Science II	4
Choose One of the Following	4
CHEM 4800 Advanced Materials Chemistry	
CHEM 4830 Nanomaterials Science	
<b>Hours</b>	<b>8</b>
<b>Total Hours</b>	<b>15-16</b>

- PLO 1. Understand the foundations of materials chemistry, including materials synthesis, materials processing, general structure/function relationships, and nanoscience.
- PLO 2. Communicate technical information clearly and accurately in written, oral and visual formats.
- PLO 3. Locate and use information in the primary literature and research databases.
- PLO 4. Critically read, assess, and evaluate scientific publications, presentations and data.
- PLO 5. Apply the concepts and practices of chemistry to areas outside the laboratory, including societal and policy issues.

## Department of Environmental Sciences

Jonathan M. Bossenbroek, Chair  
 Von Sigler, Associate Chair, undergraduate advisor (BIOM)  
 Todd Crail, undergraduate advisor (environmental studies)  
 Timothy Fisher, undergraduate advisor (environmental sciences)  
 Richard Becker, undergraduate advisor (geology)  
 Scott Heckathorn, undergraduate advisor (environmental sciences)  
 Trisha Spanbauer, honors advisor

## Degrees Offered

The Department of Environmental Sciences is an interdisciplinary group of ecologists and geologists whose research and teaching interests address human impacts on the environment, earth surface processes and ecosystem science. The two main areas of focus in our department include biology: organismal/ecology and geology: surficial/environmental. We are committed to providing you with an excellent educational experience that includes real-life problem solving, and field and laboratory work.

The Department of Environmental Sciences offers degree programs for a Bachelor of Arts in environmental studies, a Bachelor of Science in environmental science, and a Bachelor of Science in biology with a concentration in ecology and organismal biology (BIOM). <http://www.utoledo.edu/nsm/envsciences/undergrad/>

## Mission Statement

The Mission of the Department of Environmental Sciences is to conduct research to create today's environmental solutions, teach to train tomorrow's environmental leaders, and serve to promote global environmental awareness.

## General Description

The Toledo region offers potential students an ideal natural laboratory for studies in ecology, geology, and environmental sciences because it is located where unique natural habitats and landforms occur in proximity to high human population and natural resource use. Toledo is in northwestern Ohio, on the western shore of Lake Erie at the mouth of the Maumee River. The greater metropolitan area is characterized by glacial terrains, and agricultural, urban, and natural ecosystems. Local rivers, Lake Erie's productive fisheries and wetlands, the remarkable diversity of the Oak Openings savannas and woodlands, and wetland remnants of the Great Black Swamp, make the Toledo region a dynamic location for the

study of environmental sciences as well as an enjoyable place to live and work.

The Department's strengths in education and research are in the areas of: Earth surface processes; aquatic, landscape, microbial, plant, soil, systems, and vertebrate ecology; and bioremediation and phytoremediation. Research in other areas of both ecology and geology is also conducted. Much of this research occurs in the Toledo region, and often in other parts of the US and the world.

## Junior Year Studies at the University of Salford in England for Environmental Sciences and Biology Majors

Selected UT students in the Department of Environmental Sciences have the opportunity to spend their junior year at Salford. Participants in the program will pay their instructional and general fees to The University of Toledo. Eligibility to participate in the program is based on criteria established by the Department of Environmental Sciences. Information on the program may be obtained from the departmental exchange program advisor (W. Von Sigler) or from Dr. Brian Ashburner, Director of the UT-Salford Exchange Program. Details are available on academic issues, living accommodations, recreational opportunities and life in England on the departmental Web site at <http://www.utoledo.edu/nsm/bio/salford/>

## Degrees offered

- BA in Environmental Studies (p. 409)
- BS in Biology with a Concentration in Ecology and Organismal Biology (p. 411)
- BS in Environmental Sciences (p. 413)
- Minor in Environmental Biology (p. 415)
- Minor in Environmental Sciences (p. 415)
- Minor in Geology (p. 416)
- Combined bachelor's to master's-Environmental Sciences Pipeline Program (p. 413)

### EEES 1010 Physical Geology

[3 credit hours]

Introduction to the physical processes and composition of the Earth, including plate tectonics, internal structure, origin and classification of rocks and minerals, causes of geologic hazards such as earthquakes and volcanoes, surficial processes, water and natural resources, and geologic time. No credit if EEES2100 is taken. Natural sciences core course. Optional 1-credit lab, EEES 1020.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

### EEES 1020 Introductory Geology Laboratory

[1 credit hour]

Investigations of fundamental geological processes, the materials of the Earth, and geologic time. Identification of rocks and minerals.

Interpretation of geologic features and processes from maps, aerial images and physical models. This lab supports the introductory geology courses EEES 1010, 1050 and 2100. Natural sciences lab core course.

**Prerequisites:** EEES 1010 (may be taken concurrently) with a minimum grade of D- or EEES 2100 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

### EEES 1050 Geological Hazards And The Environment

[3 credit hours]

Introduction to risk mitigation involving hazardous geological processes and materials: volcanic eruptions, earthquakes, floods, ground subsidence and collapse, radon, asbestos and others.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

### EEES 1130 Down To Earth: Environmental Science

[3 credit hours]

Evaluation of environmental controversies using ecology, economics and human values. Issues range from global change, overpopulation, food production, pollution, disease, endangered species, to unique habitats including rainforests and coral reefs. (not for credit in the major)[Fall, Spring]. Natural Sciences core course.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

### EEES 1140 Environmental Solutions Laboratory

[1 credit hour]

Basic scientific methods are used to conduct laboratory and field studies relevant to contemporary environmental issues.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

### EEES 1150 Marine Biology

[3 credit hours]

An exploration of life in the world's oceans, emphasizing how marine organisms thrive in broadly diverse environments. Topics include the major ocean habitats, and ecological relationships among associated flora/fauna.

**Term Offered:** Spring, Fall

Core Natural Sciences

### EEES 1170 Microbes And Society

[3 credit hours]

A survey course focused on how microbes impact everyday life including discussions of infectious disease, food safety, and bioterrorism. Natural Sciences core course.

**Term Offered:** Spring, Summer

Core Natural Sciences

**EEES 1180 Marine Biology Coral Reef Lab**

[1 credit hour]

A virtual laboratory-based exploration of the coral reef environment and the dynamics of the coral reef ecosystem. The web of life on reefs will be examined at multiple levels, including living and non-living components and specialized roles among species, with emphasis on the delicate balance of natural processes and impacts of various stressors. Online data labs will be enhanced with at-home activities including creating and manipulating a physical model of a reef ecosystem. This course fulfills the university requirement for a natural science laboratory.

**Term Offered:** Spring

Core Natural Sciences

**EEES 2010 Introduction To Environmental Studies**

[3 credit hours]

Introduction to issues currently affecting environmental quality. Fundamental scientific concepts relating to those issues and ethical, economic, legal and political considerations that affect the resolution of environmental problems.

**Term Offered:** Spring, Fall**EEES 2020 Introduction to the Environment: Energy and Climate**

[3 credit hours]

Introduction to issues currently affecting environmental quality associated with energy production and the impacts to climate change. Fundamental scientific concepts relating to those issues and ethical, economic, legal and political considerations that affect the resolution of environmental problems.

**Term Offered:** Spring, Fall**EEES 2030 Introduction to the Environment Land-Use and Water**

[3 credit hours]

Introduction to issues currently affecting environmental quality associated with land-use (e.g. agriculture and urbanization) and focusing on the impacts to biodiversity and aquatic systems. Fundamental scientific concepts relating to those issues and ethical, economic, legal and political considerations that affect the resolution of environmental problems.

**Term Offered:** Spring, Fall**EEES 2100 Fundamentals Of Geology**

[4 credit hours]

Consideration of earth materials and the dynamic external and internal processes active on earth; the physical and biological history of the earth. Intended for science majors.

**Term Offered:** Spring, Fall**EEES 2150 Biodiversity**

[4 credit hours]

Exploration of biodiversity and general biological processes and problems as they are experienced by all living organisms: genetics, reproduction, evolution, and ecology.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**EEES 2160 Biodiversity Laboratory**

[1 credit hour]

Laboratory exercises designed to complement the material covered in EEES 2150.

**Corequisites:** EEES 2150**Term Offered:** Spring, Fall

Core Natural Sciences

**EEES 2200 Climate Change**

[3 credit hours]

An overview of the understanding of climate change and role of human activities, including atmospheric processes, greenhouse effect, carbon cycling, physical evidence, impacts, and proposed global actions in response.

**Term Offered:** Spring, Summer, Fall**EEES 2230 Earth History: Historical Geology and Paleontology - WAC**

[4 credit hours]

The morphology and paleoecology of fossil taxa, significant strata, and tectonic events important to the interpretation of paleoenvironments and Earth history are stressed. Field trip(s) required.

**Prerequisites:** EEES 1010 with a minimum grade of C- or EEES 2100 with a minimum grade of C-**Term Offered:** Spring**EEES 2400 Oceanography And Water Resources**

[3 credit hours]

An exploration of the geological, physical, chemical and biological nature of the oceans. Emphasis on the origin and evolution of ocean basins, plate tectonics, properties of seawater, and physical processes of circulation, especially as related to climate, the hydrologic cycle, and life in the oceans.

**Term Offered:** Spring, Fall**EEES 2500 Computer Applications In Environmental Sciences**

[1 credit hour]

Desktop computers used by scientists: word processing, spreadsheets, databases, GPS, processing GPS files, contour and mapping software.

**Term Offered:** Spring, Fall**EEES 2510 Advanced Computer Applications**

[2 credit hours]

Collecting and analyzing spatial data, digital elevation models, mathematical modeling of natural processes and introduction to matrix operations in Excel.

**Prerequisites:** EEES 2500 with a minimum grade of C-**Term Offered:** Spring, Fall**EEES 2600 Methods for Environmental Sciences**

[3 credit hours]

Hands on active-learning course exploring a range of commonly used field and lab exercises for environmental sciences relevant to local environmental issues. Activities will focus on developing testable hypotheses, data collection, data analysis, and presenting results in a scientific format.

**Prerequisites:** EEES 2150 with a minimum grade of C- and EEES 2500 with a minimum grade of C- and CHEM 1230 with a minimum grade of C-**Term Offered:** Spring

**EEES 2760 Methods for Environmental Sciences**

[3 credit hours]

Hands on active-learning course exploring a range of commonly used field and lab exercises used in environmental sciences. Activities will focus on data collection, data analysis, and use of standard field and lab methods relevant to local environmental issues. Exercises will focus on developing testable hypotheses, collecting data to answer those hypotheses using standard methods and equipment, analyzing data, and writing and presenting results in a scientific format.

**Prerequisites:** EEES 2150 with a minimum grade of C- or EEES 2100 with a minimum grade of C-

**Term Offered:** Spring, Fall

**EEES 2980 Special Topics**

[1-4 credit hours]

A lower division undergraduate course covering some aspect of environmental sciences not covered in the formal course offerings of the department. Students may repeat the course for different topics.

**Term Offered:** Spring, Fall

**EEES 2990 Independent Study**

[1-4 credit hours]

Student selects an appropriate approved subject for individualized study and prepares a report or gives equivalent evidence of mastery of the selected subject.

**Term Offered:** Spring, Summer, Fall

**EEES 3000 Geology Of National Parks**

[3 credit hours]

Study of regional geology of the U.S., focusing on national parks and monuments with the aim of furthering the student's geological knowledge and encouraging visitation as a tourist.

**Prerequisites:** EEES 1010 with a minimum grade of C- or EEES 2100 with a minimum grade of C-

**Term Offered:** Fall

**EEES 3050 General Ecology**

[3 credit hours]

The structure, function and regulation of populations, communities and ecosystems, emphasizing human activities and their ecological consequences.

**Prerequisites:** EEES 2150 with a minimum grade of C- or BIOL 2150 with a minimum grade of C-

**Term Offered:** Spring, Fall

**EEES 3060 General Ecology Laboratory**

[1 credit hour]

Laboratory and field exercises demonstrating ecological principles.

**Corequisites:** EEES 3050

**Term Offered:** Fall

**EEES 3100 Surficial Processes**

[3 credit hours]

Description and study of the earth's surface features from the point of view of their origin, including landforms created by glaciers, rivers, the wind, along coasts, tectonics and erosional/depositional processes. Field trip required.

**Prerequisites:** (EEES 1010 with a minimum grade of C- or EEES 2100 with a minimum grade of C-) and EEES 1020 with a minimum grade of C-

**Term Offered:** Spring, Fall

**EEES 3210 Mineralogy and Petrology**

[4 credit hours]

Mineralogy: Occurrence, characteristics and crystal chemistry, identification and geologic environments of formation of common minerals. Igneous and Metamorphic Petrology: Igneous and metamorphic rock characteristics, origins, classification and interpretation of conditions of formation. Laboratory: Using megascopically observable physical properties to identify and classify common minerals and infer crystal chemistry. Megascopic identification and classification of igneous and metamorphic rocks, identification of mineral associations and interpretation of conditions of formation.

**Prerequisites:** (EEES 1010 with a minimum grade of C- or EEES 2100 with a minimum grade of C-) and CHEM 1230 with a minimum grade of C-

**Term Offered:** Spring, Fall

**EEES 3220 Sedimentary Petrology and Stratigraphy**

[3 credit hours]

Megascopic description of sediments and sedimentary rocks, including their characteristics, classification and diagenesis; introduction to depositional processes and environments of sediments, and stratigraphic relationships of sedimentary rocks.

**Prerequisites:** EEES 2100 with a minimum grade of C- or EEES 1010 with a minimum grade of C-

**Term Offered:** Spring, Fall

**EEES 3250 Engineering Geology**

[3 credit hours]

An introduction to the application of geologic principles to engineering practices through a series of readings, laboratory exercises and practical problems. First the fundamentals of geology are presented including: plate tectonics and the resulting distributions of geologic materials and phenomena; mineral, rock and soil characterization; geologic structures; and construction and use of geologic maps. The remainder of the course investigates specific geologic processes and applications to engineering practices.

**Prerequisites:** MATH 1750 with a minimum grade of C- or MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C- or MATH 2450 with a minimum grade of C-

**Term Offered:** Fall

**EEES 3310 Earth Structures and Mapping**

[3 credit hours]

Rock deformation and its expression on maps; applying geometrical and trigonometric principles to solve problems involving dipping strata; stereonet applications, interpreting geological maps, constructing cross sections, geological GIS applications.

**Prerequisites:** EEES 2100 with a minimum grade of C- or EEES 1010 with a minimum grade of C-

**Term Offered:** Fall

**EEES 3600 Oceanography**

[3 credit hours]

An exploration of the geological, physical, chemical and biological nature of the oceans. Emphasis on the origin and evolution of ocean basins, plate tectonics, properties of seawater, and physical processes of circulation, especially as related to climate, the hydrologic cycle, and life in the oceans.

**Prerequisites:** EEES 2100 with a minimum grade of C- or EEES 1010 with a minimum grade of C- and MATH 1210 with a minimum grade of C- or MATH 1320 with a minimum grade of C- or MATH 1340 with a minimum grade of C-

**Term Offered:** Spring**EEES 3810 Science of Gardening**

[3 credit hours]

This course explores the science underlying gardening, and it is designed to foster understanding of basic scientific knowledge and the scientific process, as well as the practical application of science. The course focuses on how plants are affected by their biotic and abiotic environment, especially light, water, temperature, nutrients, soil, and enemies and partners.

**Prerequisites:** EEES 2150 with a minimum grade of C-

**EEES 3900 Literature And Communications In The Environmental Sciences**

[3 credit hours]

Survey and analysis of environmental issues featuring guest experts from a variety of environment-related occupations, readings from the environmental literature and student reports.

**Prerequisites:** ENGL 1110 with a minimum grade of C-

**Term Offered:** Spring, Fall**EEES 4100 Glacial and Quaternary Geology**

[3 credit hours]

To provide broad geologic understanding of cyclical events including glaciation, sea level, and ice sheet paleogeography during the Quaternary Period. Also, to provide detailed geologic understanding of what a glacier is and how it shapes the landscape. Specific topics will include mass balance, ice flow, hydrology, erosion, deposition, resultant landforms, glacial lake environments, and development of the regional glacial landscape. A field trip is mandatory.

**Prerequisites:** EEES 3100 with a minimum grade of C-

**Term Offered:** Spring**EEES 4150 Evolution**

[3 credit hours]

The modern theory of evolution is presented within a general framework of biological and geological evidence focusing on the fossil record, early biomolecules, protein synthesis, genetics, phylogeny and vertebrate evolution.

**Prerequisites:** (EEES 2150 with a minimum grade of C- or BIOL 2150 with a minimum grade of C-) and CHEM 1230 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall**EEES 4160 Environmental Data Management**

[3 credit hours]

An introductory course in data management for environmental science seniors covering the basics of data management practices and the use of Excel and R for data preparation, evaluation, analysis, visualization, and interpretation. Prerequisite: EEES 2500 or approval of instructor.

**Prerequisites:** EEES 2500 with a minimum grade of C-

**Term Offered:** Fall**EEES 4200 Quaternary Geology**

[3 credit hours]

To provide understanding of such cyclical events as climate change, sea level fluctuations, vegetation change and ice sheet paleogeography during the Quaternary Period and to explore future changes for planet Earth. Field trip is mandatory.

**Prerequisites:** EEES 3100 with a minimum grade of C-

**Term Offered:** Spring**EEES 4220 Environmental Geochemistry**

[3 credit hours]

Chemical reactions of environmental concern. Water and soil chemistry related to contaminant fate and mobility. Computer software used.

**Term Offered:** Spring**EEES 4240 Soil Science**

[3 credit hours]

Basic principles of soil formation, physics, and chemistry with emphasis on their influence on fluid and chemical migration and preservation of soil quality from geological, agricultural and environmental perspectives.

**Prerequisites:** CHEM 1230 with a minimum grade of C- or CHEM 1090 with a minimum grade of C-

**Term Offered:** Spring**EEES 4250 Soil Ecology**

[3 credit hours]

Underlying concepts and theory of modern soil ecology will be reviewed including the biogeochemical cycles and ecological functions of soil, and the effects of human activities. (Spring, alternate years, odd)

**Prerequisites:** EEES 3050 with a minimum grade of C- or EEES 4240 with a minimum grade of C-

**Term Offered:** Fall**EEES 4260 Soil Ecology Laboratory**

[1 credit hour]

Laboratory exercises designed to complement the material covered in the lecture.

**Term Offered:** Fall**EEES 4330 Vertebrate Ecology And Systematics**

[4 credit hours]

Ecology, systematics and conservation of the vertebrates, with special emphasis on forms native to North America.

**Prerequisites:** EEES 2150 with a minimum grade of C-

**Term Offered:** Spring, Fall

**EEES 4350 Ecology and Conservation of Reptiles and Amphibians**

[3 credit hours]

The ecology, diversity, evolution, and conservation of amphibians and reptiles. Lectures will discuss natural history, trait diversity, evolutionary context, and ecological implications of amphibians and reptiles. Hands-on activities include taxonomy and identification of local species, survey and field methods, and discussions of scientific literature. Throughout this course, the biology of amphibians and reptiles will be emphasized in the context of conservation.

**Prerequisites:** EEES 3050 with a minimum grade of C-**Term Offered:** Spring**EEES 4355 Ecology and Conservation of Reptiles and Amphibians Lab**

[1 credit hour]

Laboratory and field exercises relevant to the conservation and biology of reptiles and amphibians. This course includes field trips, data collection, and analysis of data and samples. Field trips will focus on standard methods of catching, handling, and marking reptiles and amphibians, along with field techniques relevant to studying the ecology and conservation of reptiles and amphibians.

**Term Offered:** Spring**EEES 4410 Hydrogeology**

[3 credit hours]

Fundamentals of groundwater/earth interactions are introduced concentrating on physical aspects of groundwater flow with applications to the field of water resources and contaminant investigations. This course is designed as the fundamental course in groundwater for students who plan to use hydrogeology in their careers, e.g., environmental geologists, civil and environmental engineers, environmental specialists and scientists, and petroleum geologists.

**Prerequisites:** MATH 1750 with a minimum grade of C- or MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C- or MATH 2450 with a minimum grade of C-**Term Offered:** Spring**EEES 4450 Hazardous Waste Management**

[3 credit hours]

Environmental regulations concerning hazardous waste, characteristics of hazardous waste and disposal technologies, toxicology, characteristics of organic chemicals and heavy metals, biodegradation, soil science, groundwater contamination, risk assessment, site investigation.

**Prerequisites:** CHEM 1230 with a minimum grade of C- or CHEM 1090 with a minimum grade of C-**Term Offered:** Fall**EEES 4480 GIS Applications in ENSC**

[3 credit hours]

An applications course focused on using GIS techniques and applications in environmental problems and research.

**Term Offered:** Fall**EEES 4490 Remote Sensing of The Environment**

[4 credit hours]

Introduction to theory, methods and techniques used to gather and analyze remote sensor data. Topics range from low altitude air photo interpretation through satellite image acquisition.

**Prerequisites:** GEPL 2010 with a minimum grade of C- or EEES 1010 with a minimum grade of C- or EEES 2100 with a minimum grade of C-**Term Offered:** Fall**EEES 4510 Environmental Microbiology**

[3 credit hours]

The diversity of microbial life and activities, the functioning of microbial ecosystems in energy and carbon flow and remediation of polluted environments, and the detection and control of pathogens.

**Prerequisites:** (EEES 2150 with a minimum grade of C- and CHEM 1230 with a minimum grade of C-)**Term Offered:** Fall**EEES 4610 Solid Earth Geophysics**

[3 credit hours]

Survey of theory, field applications, interpretation principles of solid earth and exploration geophysics. Two hours lecture, three hours methods laboratory.

**Prerequisites:** (PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of D- and PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and MATH 1850 with a minimum grade of D- and MATH 1860 with a minimum grade of D-)**Term Offered:** Spring**EEES 4650 Geology Field Course**

[1-4 credit hours]

Intensive field studies in various areas of geologic interest. Studies may involve various geologic field methods and descriptive techniques. Course may be repeated multiple times. Fall and Spring.

**Prerequisites:** EEES 1010 with a minimum grade of C- or EEES 2100 with a minimum grade of C-**EEES 4730 Aquatic Ecology**

[3 credit hours]

The biology of populations, communities and ecosystems with emphasis on aquatic environments. Includes the application of principles and theory from aquatic ecology to help understand and solve management problems in aquatic systems.

**Prerequisites:** EEES 3050 with a minimum grade of C-**Term Offered:** Spring, Fall**EEES 4740 Aquatic Ecology Laboratory**

[1 credit hour]

Laboratory exercises on the biology of aquatic populations, communities and ecosystems.

**Corequisites:** EEES 4730**Term Offered:** Spring, Fall**EEES 4750 Conservation Biology**

[3 credit hours]

The application of principles of ecology, biogeography, genetics, economics, philosophy and other disciplines to the study and maintenance of biological diversity in temperate, subtropical and tropical systems.

**Prerequisites:** EEES 3050 with a minimum grade of C-**Term Offered:** Spring, Fall**EEES 4755 Conservation Biology Lab**

[1 credit hour]

Laboratory and field exercises relevant to the conservation biology of populations, communities and ecosystems. This course includes field trips, sample analyses and computer-based approaches to biodiversity inventories and reserve design.

**Prerequisites:** EEES 4750 (may be taken concurrently) with a minimum grade of C-**Term Offered:** Spring, Fall



**EEES 4760 Landscape Ecology**

[3 credit hours]

A general introduction to the theory and practice of landscape ecology, including landscape-analysis, pattern-process relationship, and potential management applications at multiple spatial and temporal scales.

**Prerequisites:** EEES 3050 with a minimum grade of C-

**Term Offered:** Spring, Fall

**EEES 4790 Ecology Field Trip**

[2-4 credit hours]

Field study of globally significant ecosystem(s), including analysis of structural and functional relationship within and between ecosystems. Opportunities for individual student projects. Prerequisite: EEES 3050 or equivalent.

**Prerequisites:** EEES 3050 with a minimum grade of C-

**Term Offered:** Spring, Summer

**EEES 4850 Dimensions of Sustainability**

[3 credit hours]

Dimensions of Sustainability investigates the interactions of human activities with the natural function of the physical and biological systems of Earth. Readings and discussions will evaluate individual issues associated with sustainability, and the ethical responsibility to future generations for stewardship of the global ecosystem and human social structure.

**Term Offered:** Spring, Fall

**EEES 4910 Directed Research**

[1-5 credit hours]

Research under guidance of faculty member. An acceptable thesis is required for credit toward major.

**Term Offered:** Spring, Summer, Fall

**EEES 4920 Senior Geology Seminar**

[2 credit hours]

Survey of geology at a senior level using readings, class discussions and some lectures. The final exam will be one of the assessment measures for the Geology Program.

**Term Offered:** Spring

**EEES 4940 Internship**

[1 credit hour]

The student identifies and communicates with a community professional to earn a short-term, volunteer or paid position that will provide practical experience relevant to the student's plan of study. Student must enroll during the term service is performed.

**Term Offered:** Spring, Summer, Fall

**EEES 4960 Senior Seminar**

[1 credit hour]

The intent of the course is to provide senior students with an opportunity to identify relevant positions, create appropriate resumes/CVs and cover letters, and develop necessary interview skills as they plan for their professional careers. Prerequisite: senior standing in ENST, ENSC, GEOL, or BIOL, requiring permission of instructor.

**Term Offered:** Spring, Fall

**EEES 4970 Senior Environmental Capstone**

[3 credit hours]

A project-based capstone course focused on integration, synthesis and applications of course work students have taken in their program of study. Departmental majors with different academic backgrounds work in small teams to complete a practical, interdisciplinary project for a client culminating in a scope of work, team-presentation and project report. Clients might include a conservation organization, governmental agency, private industry, school, or other.

**Prerequisites:** EEES 3050 with a minimum grade of C-

**Term Offered:** Spring, Fall

**EEES 4980 Special Topics: Advanced Undergraduate**

[1-4 credit hours]

An advanced undergraduate course covering some aspect of the environmental sciences not covered in the formal upper-division undergraduate curriculum. Students may repeat the course for different topics.

**Term Offered:** Spring, Summer, Fall

**EEES 4990 Independent Study: Advanced Undergraduate**

[1-4 credit hours]

Student selects an appropriate approved subject for individualized study and prepares a report or gives equivalent evidence of mastery of the selected subject.

**Term Offered:** Spring, Summer, Fall

## Departmental Honors

Qualified sophomores, juniors and seniors working on degree programs within the department of environmental sciences may be invited to work for one of the following citations, consistent with their degree program: "honors in biology," "honors in environmental sciences" or "honors in environmental studies".

1. **Admission:** The departmental Honors Program is open to all department majors and may be taken concurrently with College Honors. Admission to the departmental Honors Program is based on academic achievement. Normally, students invited to participate will have achieved a 3.3 or better overall GPA by the end of the sophomore year.
2. **Requirements:** A student must satisfactorily complete from three to six credits of EEES 4910 and graduate with a minimum overall GPA of 3.3 in order to receive the honors citation. Candidates must prepare a written thesis based on their research and present an oral report at an open forum. Candidates also will provide two unbound copies of the approved thesis to the department for binding, one each for the research Advisor and department. This program provides an opportunity for the exceptional student to work closely with a faculty Advisor on an independent research topic. This research experience often leads to publication and is an excellent preparation for graduate studies.

## BA in Environmental Studies

The Bachelor of Arts degree in Environmental Studies requires a minimum of 120 hours, including a minor. Students in this degree program take a broad, interdisciplinary approach that combines science with social science and humanities courses. Students are required to minor in a non-science discipline. This degree provides a foundation

for students in the sciences that explain the human impacts to the environment, and the social and human dimensions of these issues including environmental politics, ethics, geography, and economics. Students with this degree are prepared for graduate school and career opportunities with federal and state regulatory agencies; wildlife and zoological parks; state, county and city parks; state natural resource agencies; university and secondary schools; and nonprofit and non-government organizations (NGOs).

#### For the Bachelor of Arts degree in Environmental Studies (ENST)

following courses are required:

EEES 1020	Introductory Geology Laboratory
EEES 2020	Introduction to Environmental Studies: Energy and Climate
EEES 2030	Introduction to Environmental Studies: Land and Water
EEES 2100	Fundamentals Of Geology
EEES 2150	Biodiversity
EEES 2160	Biodiversity Laboratory
EEES 2500	Computer Applications In Environmental Sciences
EEES 3050	General Ecology
EEES 3060	General Ecology Lab

EEES 4960	Senior Seminar
EEES 3900	Literature and Communication in the Environmental Sciences
EEES 4940	Internship

One of the Following:

EEES 3100	Surficial Processes	or	EEES 2400	Oceanography
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One of the following

EEES 4970	Senior Environmental Capstone	or	EEES 4980	Special Topics: BioDesign Challenge
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The following **Related** courses are also required:

ENGL 2950	Scientific Report Writing
MATH 2640	Statistics for Applied Science
CHEM 1090	Elementary Chemistry or CHEM 1100
PSC 4340	Environmental Policy
ECON 3240	Environmental Economics or ECON 3270 Natural Resource Economics
GEPL 3900	Environmental Planning
PHIL 3180	Environmental Ethics or PJS 2500 Peace Education

One of the following:

COMM 2600	Public Presentations, ENGL 3050 Persuasive Writing, ART 2800 Visual Literacy-Data Visualization, or HON 3010 Community Engagement.
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**The completion of the Environmental Studies Major requires a minor approved by your advisor.** Common minors include Geography and Planning (p. 73), and Communications (p. 52).

Students also are required to complete a 100-hr environment-related internship (EEES 4940) in an agency, corporation, university laboratory or other approved location.

With the exception of EEES 4940 students may not take any courses required in the major as P/NC.

Below is a sample plan of study. Consult your degree audit for your program requirements.

#### First Year

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
EEES 2020	Introduction to the Environment: Energy and Climate	3
ENGL 1110	College Composition I	3
Cultural Experience		4
Humanities Core		3
<b>Hours</b>		<b>15</b>

#### Second Term

EEES 1020	Introductory Geology Laboratory	1
EEES 2100	Fundamentals Of Geology	4
EEES 2030	Introduction to the Environment Land-Use and Water	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Cultural Experience		4
<b>Hours</b>		<b>15</b>

#### Second Year

##### Third Term

EEES 3100	Surficial Processes	3
or EEES 2400	or Oceanography And Water Resources	
GEPL 3900	Environmental Planning	3
EEES 2500	Computer Applications In Environmental Sciences	1
CHEM 1090	Elementary Chemistry	3
Social Science Core		3
Humanities Core		3
<b>Hours</b>		<b>16</b>

##### Fourth Term

EEES 2150	Biodiversity	4
EEES 2160	Biodiversity Laboratory	1
MATH 2640	Statistics for Applied Science	3
EEES 3900	Literature And Communications In The Environmental Sciences	3
Multicultural		3
<b>Hours</b>		<b>14</b>

#### Third Year

##### Fifth Term

EEES 3050	General Ecology	3
EEES 3060	General Ecology Laboratory	1
PHIL 3180	Environmental Ethics	3
COMM 2600	Public Presentations	3
Minor Course		3
Minor Course		3
<b>Hours</b>		<b>16</b>

**Sixth Term**

ENGL 3050	Persuasive Writing	3
Writing Across the Curriculum		3
Multicultural		3
Minor Course		3
Elective		3

**Hours 15**

**Fourth Year**

**Seventh Term**

EEES 4940	Internship	1-4
PSC 4340	Environmental Policy	3
EEES 4960	Senior Seminar	1
Minor Course		3
Minor Course		3
Elective		3

**Hours 14-17**

**Eighth Term**

ECON 3240	Environmental Economics	3
EEES 4970	Senior Environmental Capstone	3
Minor Course		3
Electives		6

**Hours 15**

**Total Hours 120-123**

- PLO 1. Students will be able to describe general taxonomic organization of life on earth and the evolutionary processes that underlie biological diversity.
- PLO 2. Students will be able to explain how both abiotic factors, such as climate and pollution, and biotic factors, such as competition and disease, affect organisms, communities, and ecosystems.
- PLO 3. Students will be able to describe how scientific and social (economic or political) factors constrain solutions to environmental quality problems;
- PLO 4. Students will demonstrate an increase in their knowledge of the relationships between the biosphere, atmosphere, geosphere and hydrosphere in northwest Ohio.
- PLO 5. Students will be able to explain how human activities impact the biosphere, atmosphere, geosphere, and hydrosphere in northwest Ohio.
- PLO 6. Students will be able to identify science-based information or research that can contribute to communicating environmental issues to the public and contribute to solutions to environmental issues.
- PLO 7. Students will be able to develop and propose informed solutions to environmental issues while taking into account economic considerations and political compromises.

## BS in Biology with a Concentration in Ecology and Organismal Biology

The Bachelor of Science degree in Biology with a concentration in Ecology and Organismal Biology requires a minimum of 120 hours. Students in this degree focus on the ecology of animals, plants and

microorganisms and their roles in the biosphere. This degree prepares students for employment or graduate school in life sciences fields, such as wildlife biology, freshwater biology, zoology, conservation biology and forestry.

NOTE: Students pursuing a BS in Biology with a Concentration in Ecology and Organismal Biology cannot double major with a BS in Environmental Sciences/Biology Minor.

The Bachelor of Science degree in biology with a concentration in ecology and organismal biology (BIOM) requires the following courses:

EEES 2150	Biodiversity
EEES 2160	Biodiversity Laboratory
EEES 3050	General Ecology
EEES 3060	General Ecology Laboratory
EEES 3900	Literature And Communications In The Environmental Sciences
EEES 4150	Evolution

Twelve additional hours of advanced elective EEES courses (3000 - 4000 level), including three advanced laboratory courses.

BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance
BIOL 3010	Molecular Genetics
BIOL 3030	Cell Biology

CHEM 1230	General Chemistry I
CHEM 1240	General Chemistry II
CHEM 1280	General Chemistry Lab I
CHEM 1290	General Chemistry Lab II
CHEM 2410	Organic Chemistry I
CHEM 2420	Organic Chemistry II
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors

MATH 2640	Statistics for Applied Science
Calculus I and II: (MATH 1750 & MATH 1760, or MATH 1830 & MATH 1840, or MATH 1850 & MATH 1860)	

Two semesters of general physics either algebra or calculus based: (PHYS 2070 and PHYS 2075 & PHYS 2080 and PHYS 2085, or PHYS 2130 and PHYS 2135 & PHYS 2140 and PHYS 2145)

### Combined bachelor's to master's-Environmental Sciences Pipeline Program

Undergraduate students accepted to the Environmental Sciences Pipeline Program will be admitted to the MS Environmental Sciences Non-thesis program and allowed to complete up to nine credits of graduate level classes during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in to the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an



undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

#### ELIGIBILITY REQUIREMENTS

UT undergraduate students must 1) be majoring in either Biology with a Concentration in Ecology and Organismal Biology or Environmental Sciences, 2) have a minimum of 3.2 cumulative undergraduate grade point average that will include undergraduate credits earned at other institutions and transferred to UT, and 3) have approval of their advisor and department chair.

#### APPLICATION PROCESS

Students holding a junior standing should apply by March 31 of that year. Application to this early pipeline program must contain 1) a letter of interest, 2) a completed graduate admission application, and 3) at least 3 letter(s) of recommendation from faculty members.

#### Pipeline B.S. to M.S. COURSES

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) EEES 6250 Graduate Launch and EEES 6300 Integrated Environmental & Earth Systems must be taken in the last two semesters of their undergraduate program, 3) Any other EEES course at the 5000 or 6000 level may be included in the approved nine semester hours of graduate credit taken as an undergraduate.

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
ENGL 1110	College Composition I	3
Social Science Core		3
Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>
Second Term		Hours
EEES 2150	Biodiversity	4
EEES 2160	Biodiversity Laboratory	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
Social Science Core		3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
<b>Hours</b>		<b>16</b>
Third Term		Hours
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1

MATH 1750	Calculus For The Life Sciences With or MATH 1850 Applications I or Single Variable Calculus I	4
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
Fourth Term		Hours
MATH 1760	Calculus For The Life Sciences With or MATH 1860 Applications II or Single Variable Calculus II	3
CHEM 2420	Organic Chemistry II	3
BIOL 3010	Molecular Genetics	3
EEES 3900	Literature And Communications In The Environmental Sciences	3
Electives		3
<b>Hours</b>		<b>15</b>
Fifth Term		Hours
EEES 3050	General Ecology	3
EEES 3060	General Ecology Laboratory	1
BIOL 3030	Cell Biology	3
US Diversity		3
Elective- WAC		3
<b>Hours</b>		<b>13</b>
Sixth Term		Hours
MATH 2640	Statistics for Applied Science	3
Electives -Major <sup>1</sup>		6
EEES Advanced Lab <sup>2</sup>		1
Electives		6
<b>Hours</b>		<b>16</b>
Seventh Term		Hours
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-US Diversity		3
Electives- Major <sup>1</sup>		6
EEES Advanced Lab <sup>2</sup>		1
<b>Hours</b>		<b>15</b>
Eighth Term		Hours
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
EEES 4150	Evolution	3
EEES Advanced Lab <sup>2</sup>		1
Electives		5-6
<b>Hours</b>		<b>14-15</b>
<b>Total Hours</b>		<b>120-121</b>

<sup>1</sup> Choose from any upper level EEES course (4000 level) for which prerequisites are met.

<sup>2</sup> Appropriate lab courses to be chosen with consent of BIOM advisor (Dr. Sigler).

• PLO 1. Students will be able to demonstrate a thorough understanding of the fundamental concepts of cell and molecular

biology, biochemistry, evolutionary biology and physiology and use these concepts to analyze and evaluate biological observations, in written and mathematical terms, and predict the behavior of biological manipulations.

- PLO 2. Students will be able to read primary biological literature and apply critical thinking skills to analyze and interpret conclusions from biological experiments. They should be able to perform effective literature searches and identify relevant primary literature.
- PLO 3. Students will be able to clearly discuss, analyze and evaluate subjects relating to biological sciences in both written and spoken presentations. They should be able to interpret these discoveries in the context of current understanding.

## BS in Environmental Sciences

The Bachelor of Science in Environmental Sciences requires a minimum of 120 hours including a minor. Students in this degree program take a broad, interdisciplinary approach that combines science with social science and humanities courses. Students are required to minor in a science to develop a deeper understanding of a specialized scientific field. Students with this degree are prepared for graduate school and career opportunities federal and state regulatory agencies; wildlife ranges and zoological parks; environmental consulting firms; state, county and city parks; state natural resource agencies; university and secondary schools; and nonprofit and non-government organizations (NGOs)

**The completion of the Environmental Sciences Major requires a minor approved by your advisor.** Common minors include Environmental Biology (p. 415), and Geology (p. 416). Other possible minors include the Minor in Renewable Energy (p. 451) or Minor Green Chemistry and Engineering (p. 402).

Students also are required to complete a 100-hr environment-related internship (EEES 4940 for 1 credit hour) in an agency, corporation, university laboratory or other approved location. With the exception of EEES 4940, students may not take any courses required in the major as P/NC.

NOTE: Students pursuing a BS in Environmental Sciences cannot double major in a BS in Biology with a Concentration in Ecology and Organismal Biology nor BS in Environmental Geology.

For the Bachelor of Science degree in Environmental Sciences (ENSC) The following courses must be included:

- EEES 1020 Introductory Geology Laboratory
- EEES 2020 Introduction to the Environment: Energy and Climate
- EEES 2030 Introduction to the Environment: Land-use and Water
- EEES 2100 Fundamentals Of Geology
- EEES 2150 Biodiversity
- EEES 2160 Biodiversity Laboratory
- EEES 2500 Computer Applications In Environmental Sciences
- EEES 2510 Advanced Computer Applications

One of the following:

- EEES 2760 Field Methods or EEES 2600 Analytical Methods

- EEES 3050 General Ecology
- EEES 3060 General Ecology Lab

One of the following:

EEES 2400 Oceanography and Water Resources or EEES 3100 Surficial Processes or EEES 4240 Soil Science

- EEES 3900 Literature And Communications In The Environmental Sciences
- EEES 4940 Internship
- EEES 4970 Environmental Capstone
- EEES 4960 Senior Seminar

One advanced EEES laboratory course

The following RELATED courses are also required:

- MATH 2640 Statistics for Applied Science Calculus I and II: (MATH 1750 and MATH 1760, or MATH 1850 and MATH 1860)
- CHEM 1230 General Chemistry I
- CHEM 1280 General Chemistry Lab I
- CHEM 1240 General Chemistry II
- CHEM 1290 General Chemistry Lab II

Four of following RELATED courses, including at least 1 in each of the social sciences and humanities groups:

Social Science group:

- GEPL 3900 Environmental Planning
- PSC 4340 Environmental Policy
- ECON 3240 Environmental Economics
- ECON 3270 Natural Resource Economics

Humanities group

- REL 2980 Religion and Environment
- PHIL 3180 Environmental Ethics
- PJS 2500 Peace Education

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### Combined bachelor's to master's-Environmental Sciences Pipeline Program

Undergraduate students accepted to the Environmental Sciences Pipeline Program will be admitted to the MS Environmental Sciences Non-thesis program and allowed to complete up to nine credits of graduate level classes during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in to the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

#### ELIGIBILITY REQUIREMENTS

UT undergraduate students must 1) be majoring in either Biology with a Concentration in Ecology and Organismal Biology or Environmental Sciences, 2) have a minimum of 3.2 cumulative undergraduate grade point average that will include undergraduate credits earned at other

institutions and transferred to UT, and 3) have approval of their advisor and department chair.

#### APPLICATION PROCESS

Students holding a junior standing should apply by March 31 of that year.

Application to this early pipeline program must contain 1) a letter of interest, 2) a completed graduate admission application, and 3) at least 3 letter(s) of recommendation from faculty members.

#### Pipeline B.S. to M.S. COURSES

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) EEES 6250 Graduate Launch and EEES 6300 Integrated Environmental & Earth Systems must be taken in the last two semesters of their undergraduate program, 3) Any other EEES course at the 5000 or 6000 level may be included in the approved nine semester hours of graduate credit taken as an undergraduate.

Below is a sample plan of study (for the Environmental Biology Minor<sup>1</sup>). Consult your advisor and the degree audit for your program requirements.

#### First Year

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
EEES 2020	Introduction to the Environment: Energy and Climate	3
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
ENGL 1110	College Composition I (Arts/Humanities Core)	3
Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>

#### Second Term

EEES 2030	Introduction to the Environment Land-Use and Water	3
EEES 2100	Fundamentals Of Geology	4
EEES 1020	Introductory Geology Laboratory	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
Social Science Core		3
<b>Hours</b>		<b>16</b>

#### Second Year

##### Third Term

EEES 2150	Biodiversity	4
EEES 2160	Biodiversity Laboratory	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1750 or MATH 1850	Calculus For The Life Sciences With Applications I or Single Variable Calculus I	4
EEES 2500	Computer Applications In Environmental Sciences	1
EEES 2760	Methods for Environmental Sciences	3

or EEES 3100	or Surficial Processes	
<b>Hours</b>		<b>16</b>

#### Fourth Term

EEES 2600 or EEES 2400	Methods for Environmental Sciences or Oceanography And Water Resources	3
EEES 2510	Advanced Computer Applications	2
US Diversity Core		3
MATH 1760 or MATH 1860	Calculus For The Life Sciences With Applications II or Single Variable Calculus II	3
Elective		3
<b>Hours</b>		<b>14</b>

#### Third Year

##### Fifth Term

EEES 3050	General Ecology	3
EEES 3060	General Ecology Laboratory	1
MATH 2640	Statistics for Applied Science	3
Social Science Core		3
PHIL 3180	Environmental Ethics	3
Non-US Diversity		3
<b>Hours</b>		<b>16</b>

##### Sixth Term

EEES 3900	Literature And Communications In The Environmental Sciences	3
GEPL 3900	Environmental Planning	3
Environmental Biology Minor		4
Elective		5
<b>Hours</b>		<b>15</b>

#### Fourth Year

##### Seventh Term

EEES 4940	Internship	1
EEES 4970	Senior Environmental Capstone	3
PSC 4340	Environmental Policy	3
Environmental Biology Minor		3
Advanced Lab		1
Arts/Humanities Core		3
<b>Hours</b>		<b>14</b>

##### Eighth Term

ECON 3240	Environmental Economics	3
EEES 4960	Senior Seminar	1
Environmental Biology Minor		6
Elective		3
<b>Hours</b>		<b>13</b>

**Total Hours 120**

- PLO A1. Environmental Science requires a basic understanding of geology, including an understanding of earth materials and landforms. A1. Students will be able to identify and classify minerals, rocks (igneous, sedimentary, and metamorphic), and common fossils.
- PLO A2. Environmental Science requires a basic understanding of geology, including an understanding of earth materials and

landforms. A2. Students will be able to identify landforms and interpret formative processes of landforms from maps and digital elevation models.

- PLO B. Environmental Science uses the principles of biology to understand how organisms are affected by the environment. B1. Students will be able to explain how both abiotic factors, such as climate and pollution, and biotic factors, such as competition and disease, affect organisms, communities, and ecosystems.
- PLO C. Environmental Scientists interact with Social Scientists to understand the human context in which environmental problems exist. C1. Students will be able to propose and discuss public policy and planning options for improving or managing factors that impact the environment.
- PLO D. Environmental Scientists provide the science to address the impacts and solutions of environmental problems. D1. Students will be able to analyze the major environmental problems that are affecting our earth and well-being, including climate change, pollution, and resource management.
- PLO E. Environmental Science is a field-oriented science conducted, in part, through field investigations, which requires expertise in collecting field-based data. 1. Students will be able to organize and conduct data collection for a field-based investigation.
- PLO F1. Environmental Scientists require technical skills, including computing, statistics, and communication. 1. Students will be able to analyze data both graphically and statistically.
- PLO F2. Environmental Scientists require technical skills, including computing, statistics, and communication. 2. Students will be able to interpret and report results of a research project, in both audio-visual and written forms, using appropriate technology.
- PLO G1. Environmental Science is multi-disciplinary, but our students must have an area of concentration, such as Biology, Geology, or Chemistry (within Environmental Science). Students should be able to describe and explain examples of the linkages among their area of concentration and the other areas of Environmental Science.

## Minor in Environmental Biology

The Minor in Environmental Biology requires a minimum of 21 hours of which 12 must be unique to the minor. Students in this degree focus on the ecology of animals, plants and microorganisms and their roles in the biosphere. This minor prepares students for employment in life sciences fields, such as wildlife biology, freshwater biology, zoology, conservation biology and forestry.

### CORE REQUIRED COURSES

Code	Title	Hours
EEES 2150	Biodiversity	4
EEES 2160	Biodiversity Laboratory	1
EEES 3050	General Ecology	3
EEES 4150	Evolution	3

### ELECTIVES - AT LEAST 10 CREDITS FROM THE FOLLOWING:

Code	Title	Hours
EEES 3060	General Ecology Laboratory	1
EEES 3810	Science of Gardening	3
EEES 4250	Soil Ecology	3
EEES 4260	Soil Ecology Laboratory	1
EEES 4350	Ecology and Conservation of Reptiles and Amphibians	3
EEES 4355	Ecology and Conservation of Reptiles and Amphibians Lab	1
EEES 4480	GIS Applications in ENSC	3
EEES 4730	Aquatic Ecology	3
EEES 4740	Aquatic Ecology Laboratory	1
EEES 4750	Conservation Biology	3
EEES 4755	Conservation Biology Lab	1
EEES 4760	Landscape Ecology	3
EEES 4790	Ecology Field Study	2-4
EEES 4980	Principles of Wildlife Management	1-4

Students completing a the Environmental Biology minor must be sure that at least 12 credit hours of the minor requirements are unique to the minor, and are not being used to satisfy requirements in the major or another minor.

- PLO 1. Students will be able to describe the basics of inheritance, including genes, chromosomes and DNA structure.
- PLO 2. Students will be able to identify the basic structures of a cell and describe basic cellular functions, including mitosis, meiosis, metabolism, respiration and photosynthesis.
- PLO 3. Students will be able to describe and explain examples for how both abiotic and biotic factors define the distribution of organisms.
- PLO 4. Students will be able to explain the basic tenets of evolution, including speciation and natural selection.
- PLO 5. Students will be able to examine an ecological issue from a statistical perspective and debate results.
- PLO 6. Students will be able to describe and discuss examples of the linkages among biology and the other natural sciences.

## Minor in Environmental Sciences

The Minor in Environmental Sciences requires a minimum of 21 hours of which at least 12 credit hours must be unique to that minor. Students in this minor are exposed to the science that underlies and helps to solve our environmental issues.

Students electing to minor in environmental sciences must complete at least 21 hours of course work consisting of the following:

Code	Title	Hours
EEES 2100	Fundamentals Of Geology	4
EEES 2020	Introduction to the Environment: Energy and Climate	3

EEES 2030	Introduction to the Environment Land-Use and Water	3
EEES 2150	Biodiversity	4
EEES 2500	Computer Applications In Environmental Sciences	1
Choose any 2000–4000-level EEES courses, in consultation with your advisor, to achieve 21, or more, total credit hours.		6
<b>Total Hours</b>		<b>21</b>

A minimum GPA of 2.0 in the EEES course work is required, and the program must be approved in advance by the departmental ENSC minor advisor (Dr. Fisher).

**NOTE:** EEES 3050 (*Fundamentals of Ecology*) is a prerequisite course for several of the advanced EEES courses.

- A. Environmental Science requires a basic understanding of geology, including an understanding of earth materials and landforms. 1. Students will be able to identify and classify minerals, rocks (igneous, sedimentary, and metamorphic), and common fossils.
- B. Environmental Science uses the principles of biology to understand how organisms are affected by the environment. 1. Students will be able to explain how both abiotic factors, such as climate and pollution, and biotic factors, such as competition and disease, affect organisms, communities, and ecosystems.
- C. Environmental Scientists interact with Social Scientists to understand the human context in which environmental problems exist. 1. Students will be able to discuss public policy and planning options for improving or managing factors that impact the environment.

## Minor in Geology

The Minor in Geology requires a minimum of 21 hours of which at least 12 credit hours must be unique to that minor. Students in this minor have a foundation in geology, particularly in near surface geology at the intersection of geology and the environment. Students electing to minor in geology must complete the following:

### REQUIRED COURSES

Code	Title	Hours
EEES 1020	Introductory Geology Laboratory	1
EEES 2100	Fundamentals Of Geology	4

### AT LEAST TWO COURSES FROM THE FOLLOWING FOUR

Code	Title	Hours
EEES 2230	Earth History: Historical Geology and Paleontology	4
EEES 3210	Mineralogy and Petrology	4
EEES 3220	Sedimentary Petrology and Stratigraphy	3
EEES 3310	Earth Structures and Mapping	3

CHOOSE AT LEAST 8–10 UNIQUE CREDITS FROM THIS LIST OF COURSES to make up a minimum of 21 credit hours. \*Only one of EEES4480 or EEES4490 can be used to fulfill these credits.

Code	Title	Hours
EEES 2230	Earth History: Historical Geology and Paleontology	4
EEES 2400	Oceanography And Water Resources	3
EEES 3000	Geology Of National Parks	3
EEES 3100	Surficial Processes	3
EEES 3210	Mineralogy and Petrology	4
EEES 3220	Sedimentary Petrology and Stratigraphy	3
EEES 3250	Engineering Geology	3
EEES 3310	Earth Structures and Mapping	3
EEES 4100	Glacial and Quaternary Geology	3
EEES 4150	Evolution	3
EEES 4200	Quaternary Geology	3
EEES 4220	Environmental Geochemistry	3
EEES 4410	Hydrogeology	3
EEES 4450	Hazardous Waste Management	3
EEES 4480	GIS Applications in ENSC	3
EEES 4490	Remote Sensing of The Environment	4
EEES 4920	Senior Geology Seminar	2

The departmental undergraduate geology advisor (Dr. Becker) must approve a program of study in advance, and a minimum GPA of 2.0 must be achieved for the course work completed in the minor.

Below is a sample plan of study. Consult your degree audit for your program requirements.

### First Year

First Term	Hours	
EEES 1020	Introductory Geology Laboratory	1
EEES 2100	Fundamentals Of Geology <sup>EEES 1010 can substitute with permission of advisor.</sup>	4
<b>Hours</b>		<b>5</b>

### Second Term

EEES 2230 or EEES 3220	Earth History: Historical Geology and Paleontology or Sedimentary Petrology and Stratigraphy	3 - 4
<b>Hours</b>		<b>3-4</b>

### Second Year

Third Term	Hours	
EEES 3210 or EEES 3310	Mineralogy and Petrology or Earth Structures and Mapping	3 - 4
EEES Elective		3
<b>Hours</b>		<b>6-7</b>

### Fourth Term

EEES Electives		6 - 8
<b>Hours</b>		<b>6-8</b>
<b>Total Hours</b>		<b>20-24</b>

- PLO 1. Students will be able to identify and classify Earth materials, including minerals, rocks and common fossils.



- PLO 2. Students will be able to apply the common tools necessary for a field investigation in geology.
- PLO 3. Students will be able to explain the two fundamental paradigms in geology: plate tectonics and evolution.
- PLO 4. Students will be able to apply the concepts of plate tectonics to the analysis of other geologic processes, such as the distribution of earthquakes, creation of landforms, and sedimentary depositional environments.
- PLO 5. Students will be able to explain and discuss the basic principles concerning the origin and distribution of minerals (mineralogy) and rocks (petrology).
- PLO 6. Students will be able to evaluate the record of rock behavior under stress (structural geology) within the lithosphere.
- PLO 7. Students will be able to analyze field maps or other images to interpret the processes and interactions among the primary Earth systems that produce features on the Earth surface.
- PLO 8. Students will be able to evaluate environmental issues in the context of geological principles, and to design practical potential solutions.

## Department of Mathematics and Statistics

Geoffrey Martin, Chair

Ekaterina Shemyakova, Associate Chair

Hiba Fayoumi, Undergraduate Advisor – Pure Mathematics, Applied Mathematics, Mathematics with Computer Science, and Math Minor

Zhiwei Chen, Undergraduate Advisor - Actuarial Science

Qin Shao, Undergraduate Advisor - Data Science

### MISSION

The mission of the undergraduate programs in the mathematical science offer by the Department of Mathematics and Statistics is to provide our majors with the skills and conceptual understanding required to succeed as professionals in occupations requiring training in the mathematical sciences or to succeed in further study at the graduate level.

### Degrees Offered

The Department of Mathematics and Statistics offers degree programs for a Bachelor of Arts or a Bachelor of Science in Mathematics.

### Advanced Placement

- Students with a score of 3 or better on AB calculus will receive credit for MATH 1850.
- Students with a score of 3, 4 or 5 on the BC calculus test will receive credit for both MATH 1850 and MATH 1860.
- Students with a score below 3 may be able to obtain credit by taking a departmental test.
- Students with a score of 3 or better on the Statistics Test will receive credit for MATH 2600.

### Degrees Offered

- BS in Mathematics (p. 424)
- Minor in Mathematics (p. 437)

#### MATH 1180 Reasoning With Mathematics

[3 credit hours]

Reasoning with Mathematics will prepare students for an increasingly information-based society. Students will acquire the skills necessary to make rational decisions based on real data and evaluate numerical information. They will be exposed to general methods of inquiry that apply in a wide variety of settings. They will be able to critically assess arguments and make rational decisions. Finally, students will develop the ability to judge the strengths and limitations of quantitative approaches.

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

#### MATH 1200 Mathematical Modeling and Problem Solving

[4 credit hours]

Mathematical modeling of data using linear, quadratic, rational, and radical functions in their numerical, symbolic, graphic, and verbal forms. Problem solving methods and strategies will be emphasized. Course is not applicable toward the undergraduate Mathematics major requirements. Math core course.

**Term Offered:** Spring, Summer, Fall

Core Mathematics

#### MATH 1210 Mathematics For Education Majors I

[3 credit hours]

Principles of elementary number theory, base systems, foundations of arithmetic operations, fractions, decimals and problem solving techniques. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** MATH 1180 with a minimum grade of C- or MATH 1200 with a minimum grade of C- or Aleks Math Placement Test with a score of 46 or Aleks Math Placement Retest with a score of 46 or ACT Math with a score of 20 or Math - Coll Algebra Placement with a score of 10 or Math - Elem Algebra Placement with a score of 12 or SAT Mathematics with a score of 480 or MATH SECTION SCORE with a score of 510

**Term Offered:** Spring, Fall

Core Mathematics

#### MATH 1220 Mathematics For Education Majors II

[3 credit hours]

Development of integers, rational numbers and real numbers; probability, statistics, informal geometry, geometric figures and measurements. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** MATH 1210 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

#### MATH 1310 College Algebra Corequisite Lab

[0 credit hours]

Corequisite course associated with MATH 1320. Learning experiences to develop skills and to enhance the material presented in MATH 1320. Placement based on departmental guidelines.

**Term Offered:** Spring, Fall

**MATH 1320 College Algebra**

[3 credit hours]

Number system; elementary theory of equations and inequalities; functions and relations; exponentials and logarithms; systems of equations and topics in analytic geometry. Course is not applicable toward the undergraduate Mathematics major requirements. No credit given for students who have credit for MATH 1340.

**Prerequisites:** (High School GPA with a score of 3.0 and (ACT Math with a score of 18 or Aleks Math Placement Test with a score of 44 or Aleks Math Placement Retest with a score of 44 or SAT Mathematics with a score of 500 or MATH SECTION SCORE with a score of 460 or MATH 1200 with a minimum grade of C+ or MATH 1180 with a minimum grade of B+) or (MATH 1310 (may be taken concurrently) with a minimum grade of C and (ACT Math with a score of 16 or Aleks Math Placement Test with a score of 36 or Aleks Math Placement Retest with a score of 36 or SAT Mathematics with a score of 430 or MATH SECTION SCORE with a score of 390 or MATH 1200 with a minimum grade of C- or MATH 1180 with a minimum grade of C-)) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 56 or Aleks Math Placement Retest with a score of 56 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560 or MATH 1200 with a minimum grade of C+ or MATH 1180 with a minimum grade of B+) or (MATH 1310 (may be taken concurrently) with a minimum grade of C and (ACT Math with a score of 20 or Aleks Math Placement Test with a score of 48 or Aleks Math Placement Retest with a score of 48 or SAT Mathematics with a score of 520 or MATH SECTION SCORE with a score of 490 or MATH 1200 with a minimum grade of C- or MATH 1180 with a minimum grade of C-)) or Math - Coll Algebra Placement with a score of 10

**Term Offered:** Spring, Summer, Fall  
Core Mathematics, OT36 Mathematics

**MATH 1330 Trigonometry**

[3 credit hours]

Definitions and graphs of trigonometric functions and their inverses, solving trigonometric equations, applications and topics in analytic geometry. Course is not applicable toward the undergraduate Mathematics major requirements. No credit given for students who have credit for MATH 1340.

**Prerequisites:** (High School GPA with a score of 3.25 and (ACT Math with a score of 20 or Aleks Math Placement Test with a score of 48 or Aleks Math Placement Retest with a score of 48 or SAT Mathematics with a score of 520 or MATH SECTION SCORE with a score of 490)) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 66 or Aleks Math Placement Retest with a score of 66 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1320 with a minimum grade of C- or Math - Coll Algebra Placement with a score of 15

**Term Offered:** Spring, Summer, Fall  
Core Mathematics, OT36 Mathematics

**MATH 1340 College Algebra And Trigonometry**

[0-5 credit hours]

Functions and graphs, exponential and logarithmic functions, trigonometric functions and applications, systems of equations and topics in analytic geometry. No credit for students who have credit for MATH 1320 or 1330.

**Prerequisites:** (High School GPA with a score of 3.25 and (ACT Math with a score of 20 or Aleks Math Placement Test with a score of 48 or Aleks Math Placement Retest with a score of 48 or SAT Mathematics with a score of 520 or MATH SECTION SCORE with a score of 490)) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 66 or Aleks Math Placement Retest with a score of 66 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1320 with a minimum grade of C- or (Math - Coll Algebra Placement with a score of 15 and Math - Trigonometry Placement with a score of 9)

**Term Offered:** Spring, Fall  
Core Mathematics, OT36 Mathematics

**MATH 1730 Calculus with Applications to Business and Finance**

[0-5 credit hours]

An introduction to differential and integral calculus. Topics include limits, derivatives, maxima/minima, indefinite and definite integrals with an emphasis on business applications and technology use.

**Prerequisites:** High School GPA with a score of 3.5 and (ACT Math with a score of 20 or Aleks Math Placement Test with a score of 48 or Aleks Math Placement Retest with a score of 48 or SAT Mathematics with a score of 520 or MATH SECTION SCORE with a score of 490) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 68 or Aleks Math Placement Retest with a score of 68 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1320 with a minimum grade of C- or MATH 1330 with a minimum grade of C- or MATH 1340 with a minimum grade of C- or Math - Coll Algebra Placement with a score of 15

**Term Offered:** Spring, Summer, Fall  
Core Mathematics, OT36 Mathematics

**MATH 1750 Calculus For The Life Sciences With Applications I**

[0-4 credit hours]

Definitions of trigonometric functions, solving trigonometric equations, functions, limits and derivatives, exponential and logarithmic functions, and applications. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** High School GPA with a score of 3.5 and (ACT Math with a score of 20 or Aleks Math Placement Test with a score of 48 or Aleks Math Placement Retest with a score of 48 or SAT Mathematics with a score of 520 or MATH SECTION SCORE with a score of 490) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 68 or Aleks Math Placement Retest with a score of 68 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1320 with a minimum grade of C- or MATH 1330 with a minimum grade of C- or MATH 1340 with a minimum grade of C- or Math - Coll Algebra Placement with a score of 15

**Term Offered:** Spring, Summer, Fall  
Core Mathematics, OT36 Mathematics

**MATH 1760 Calculus For The Life Sciences With Applications II**

[0-3 credit hours]

Indefinite and definite integrals, probability, vectors, least squares, differential equations. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** MATH 1750 with a minimum grade of C- or MATH 1850 with a minimum grade of C- or MATH 1830 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 1830 Calculus I For Mathematicians, Scientists And Educators**

[4 credit hours]

Limits, differentiation, Fundamental Theorem of Calculus, Mean Value Theorem, curve sketching, maxima/minima, definite and indefinite integrals, applications. The emphasis is on the rigorous aspects and foundational ideas of calculus. Of interest to students requiring a conceptual understanding of calculus. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** High School GPA with a score of 3.5 and (Aleks Math Placement Test with a score of 68 or Aleks Math Placement Retest with a score of 68 or Math - Trigonometry Placement with a score of 12) and (ACT Math with a score of 24 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560 or Aleks Math Placement Test with a score of 76 or Aleks Math Placement Retest with a score of 76 or Math - Trigonometry Placement with a score of 12) and (ACT Math with a score of 27 or SAT Mathematics with a score of 640 or MATH SECTION SCORE with a score of 620) or (Math - Coll Algebra Placement with a score of 15 and Math - Trigonometry Placement with a score of 12) or MATH 1340 with a minimum grade of C- or MATH 1330 with a minimum grade of C-

**Term Offered:** Fall

Core Mathematics, OT36 Mathematics

**MATH 1840 Calculus II For Mathematicians, Scientists And Educators**

[4 credit hours]

Applications and techniques of integration, polar coordinates and calculus of plane curves, infinite series and Taylor series, vectors and geometry of space. The emphasis is on the rigorous aspects and foundational ideas of calculus. Of interest to students requiring a conceptual understanding of calculus.

**Prerequisites:** MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C- or MATH 1920 with a minimum grade of C-

**Term Offered:** Spring, Fall

Core Mathematics, OT36 Mathematics

**MATH 1850 Single Variable Calculus I**

[0-4 credit hours]

Limits, differentiation, Fundamental Theorem of Calculus, curve sketching, maxima/minima, definite and indefinite integrals, applications. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** High School GPA with a score of 3.5 and (Aleks Math Placement Test with a score of 68 or Aleks Math Placement Retest with a score of 68 or Math - Trigonometry Placement with a score of 12) and (ACT Math with a score of 24 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560 or Aleks Math Placement Test with a score of 76 or Aleks Math Placement Retest with a score of 76 or Math - Trigonometry Placement with a score of 12) and (ACT Math with a score of 27 or SAT Mathematics with a score of 640 or MATH SECTION SCORE with a score of 620) or (Math - Coll Algebra Placement with a score of 15 and Math - Trigonometry Placement with a score of 12) or MATH 1340 with a minimum grade of C- or MATH 1330 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 1860 Single Variable Calculus II**

[0-4 credit hours]

Applications and techniques of integration, polar coordinates and calculus of plane curves, infinite series and Taylor series, vectors and geometry of space.

**Prerequisites:** MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 1890 Elementary Linear Algebra**

[3 credit hours]

Matrix algebra, systems of linear equations, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, applications, additional topics chosen from Google's page rank algorithm, Digital Image Compression, and others.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 1980 Topics In Mathematics**

[1-4 credit hours]

Selected topics in mathematics.

**Term Offered:** Spring, Fall

**MATH 2190 Foundations of Mathematics**

[3 credit hours]

This course lays the logical and set-theoretic foundations for upper level mathematics courses. Topics include: logical connectives, quantifiers; techniques of proof; set operations; functions; equivalence classes; partitions, cardinality, natural numbers, rationals, real numbers.

**Prerequisites:** MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C-

**Term Offered:** Spring

**MATH 2450 Calculus For Engineering Technology I**

[0-8 credit hours]

Differential calculus of algebraic and trigonometric functions, including limits, curve sketching, motion, maxima/minima, related rates, integral calculus of algebraic functions.

**Prerequisites:** High School GPA with a score of 3.5 and (Aleks Math Placement Test with a score of 68 or Aleks Math Placement Retest with a score of 68 or Math - Trigonometry Placement with a score of 12) and (ACT Math with a score of 24 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or (Aleks Math Placement Test with a score of 76 or Aleks Math Placement Retest with a score of 76 or Math - Trigonometry Placement with a score of 12) and (ACT Math with a score of 27 or SAT Mathematics with a score of 640 or MATH SECTION SCORE with a score of 620) or (Math - Coll Algebra Placement with a score of 15 and Math - Trigonometry Placement with a score of 12) or MATH 1340 with a minimum grade of C- or MATH 1330 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 2460 Calculus For Engineering Technology II**

[0-4 credit hours]

Transcendental functions, methods of integration, applications of the integral, polar coordinates, vectors and vector operation, lines and planes, parametric equations.

**Prerequisites:** MATH 2450 with a minimum grade of C- or MATH 1850 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 2600 Introduction To Statistics**

[3 credit hours]

An introduction to descriptive and inferential statistical methods including point and interval estimation, hypothesis testing and regression. No credit allowed if taken after MATH 3610 or 4680; credit not allowed for both MATH 2600 and 2630. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** High School GPA with a score of 3.0 and (ACT Math with a score of 18 or Aleks Math Placement Test with a score of 44 or Aleks Math Placement Retest with a score of 44 or SAT Mathematics with a score of 500 or MATH SECTION SCORE with a score of 460) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 56 or Aleks Math Placement Retest with a score of 56 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1200 with a minimum grade of C+ or MATH 1180 with a minimum grade of B+ or Math - Coll Algebra Placement with a score of 10

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 2620 Discrete Probability**

[3 credit hours]

Sample spaces, events, counting techniques, probability distributions and their applications. No credit if taken after 4680. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** (High School GPA with a score of 3 and ACT Math with a score of 18 or Aleks Math Placement Test with a score of 44 or Aleks Math Placement Retest with a score of 44 or SAT Mathematics with a score of 500 or MATH SECTION SCORE with a score of 460) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 56 or Aleks Math Placement Retest with a score of 56 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1200 with a minimum grade of C+ or MATH 1180 with a minimum grade of B+ or Math - Coll Algebra Placement with a score of 10

**Term Offered:** Spring

**MATH 2640 Statistics for Applied Science**

[3 credit hours]

Introduction to statistical methods. Modeling relationships between variables. Basic concepts in probability. Introduction to design of experiments, surveys and observational studies. Overview of statistical procedures used in applied science literature.

**Prerequisites:** High School GPA with a score of 3.0 and (ACT Math with a score of 18 or Aleks Math Placement Test with a score of 44 or Aleks Math Placement Retest with a score of 44 or SAT Mathematics with a score of 500 or MATH SECTION SCORE with a score of 460) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 56 or Aleks Math Placement Retest with a score of 56 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1200 with a minimum grade of C+ or MATH 1180 with a minimum grade of B+ or Math - Coll Algebra Placement with a score of 10

**Term Offered:** Spring, Fall

Core Mathematics

**MATH 2850 Elementary Multivariable Calculus**

[4 credit hours]

Geometry of functions of several variables, partial differentiation, multiple integrals, vector algebra and calculus (including Theorems of Green, Gauss and Stokes), and applications.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**MATH 2860 Elementary Differential Equations**

[3 credit hours]

An introduction to the analysis and solution of ordinary differential equations with emphasis on the fundamental techniques for solving linear differential equations.

**Prerequisites:** MATH 2850 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**MATH 2890 Numerical Methods And Linear Algebra**

[3 credit hours]

Topics include: matrices, characteristic roots, solution of linear and nonlinear equations, curve fitting, integration, differentiation and numerical solution of ordinary differential equations. MATLAB is introduced and used to analyze problems. Additional topics are chosen from Google's page rank algorithm, Digital Image Compression, and others.

**Prerequisites:** MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C- or MATH 1920 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**MATH 3000 Symbolic Logic**

[3 credit hours]

A study of propositional and predicate logic, the symbolic techniques used to evaluate deductive arguments. Topics may include computability, set theory, Bayesianism and other formal systems with mathematical or philosophical relevance.

**Prerequisites:** MATH 1180 with a minimum grade of C-

**Term Offered:** Spring, Fall

**MATH 3190 Introduction To Mathematical Analysis**

[3 credit hours]

This course is intended to introduce students to mathematical analysis. The focus will be on learning to write clear, rigorous proofs. Topics include set theory and logic, the real number system and its topology, sequences, limits and continuity.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-

**Term Offered:** Fall

**MATH 3200 Number Theory**

[3 credit hours]

Divisibility, congruences, diophantine equations, numerical functions, quadratic reciprocity.

**Prerequisites:** MATH 2190 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Spring, Fall

**MATH 3320 Introduction To Abstract Algebra**

[3 credit hours]

Sets and mappings, integers, groups, rings and applications.

**Prerequisites:** MATH 2190 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Spring

**MATH 3440 Fundamentals Of Modern Geometry I**

[3 credit hours]

Euclidean geometry from a modern viewpoint, constructions and transformations. Primarily for students in secondary education.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-

**Term Offered:** Fall

**MATH 3450 Fundamentals Of Modern Geometry II**

[3 credit hours]

Euclidean geometry from a modern viewpoint, constructions and transformations. Primarily for students in secondary education.

**Prerequisites:** MATH 3440 with a minimum grade of C-

**Term Offered:** Spring

**MATH 3510 History Of Mathematics**

[3 credit hours]

Contributions to the development of mathematics by various groups and individuals from the earliest history to the present, with special emphasis on the elementary branches: arithmetic, algebra, geometry and calculus.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-

**Term Offered:** Fall

**MATH 3610 Statistical Methods I**

[3 credit hours]

Basic probability, sampling, descriptive statistics, statistical inference, regression, correlation, analysis of variance, goodness of fit, model formulation and testing.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Summer, Fall

**MATH 3620 Statistical Methods II**

[3 credit hours]

Multiple regression, analysis of covariance, standard experimental designs, contingency tables, nonparametric methods and methods for sample surveys.

**Prerequisites:** MATH 3610 with a minimum grade of C-

**Term Offered:** Spring

**MATH 3920 Junior Readings**

[1-3 credit hours]

Selected subjects in mathematics of special interest to students and the professor.

**Term Offered:** Spring, Summer, Fall

**MATH 4300 Linear Algebra I**

[3 credit hours]

Theory of vector spaces and linear transformations, including such topics as matrices, determinants, inner products, eigenvalues and eigenvectors, and rational and Jordan canonical forms.

**Prerequisites:** MATH 2190 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Fall

**MATH 4330 Abstract Algebra I**

[3 credit hours]

Arithmetic of the integers, unique factorization and modular arithmetic; group theory including normal subgroups, factor groups, cyclic groups, permutations, homomorphisms, the isomorphism theorems, abelian groups and p-groups.

**Prerequisites:** MATH 2190 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Fall

**MATH 4340 Abstract Algebra II**

[3 credit hours]

Ring theory including integral domains, field of quotients, homomorphisms, ideals, Euclidean domains, polynomial rings, vector spaces, roots of polynomials and field extensions.

**Prerequisites:** MATH 4330 with a minimum grade of C-

**Term Offered:** Spring

**MATH 4350 Applied Linear Algebra**

[3 credit hours]

Matrices, systems of equations, vector spaces, linear transformations, determinants, eigenvalues and eigenvectors, singular value decomposition, pseudoinverses, rank, numerical methods and applications to various areas, e.g., the Google Matrix or Digital Image Compression or others.

**Prerequisites:** MATH 1890 with a minimum grade of C- or MATH 2890 with a minimum grade of C-

**Term Offered:** Spring, Summer

**MATH 4380 Discrete Structures And Analysis Of Algorithms**

[3 credit hours]

Discrete mathematical structures for applications in computer science such as graph theory, combinatorics, and groups theory, asymptotics, recurrence relations and analysis of algorithms.

**Prerequisites:** MATH 3320 with a minimum grade of C- or MATH 4330 with a minimum grade of C-

**Term Offered:** Fall

**MATH 4450 Introduction To Topology I**

[3 credit hours]

Metric spaces, topological spaces, continuous maps, bases and subbases, closure and interior operators, products, subspaces, sums, quotients, separation axioms, compactness and local compactness.

**Prerequisites:** MATH 2190 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Fall

**MATH 4460 Introduction To Topology II**

[3 credit hours]

Connectedness and local connectedness, convergence, metrization, function spaces. The fundamental groups and its properties, covering spaces, classical applications, e.g. Jordan Curve Theorem, Fundamental Theorem of Algebra, Brouwer's Fixed Point Theorem.

**Prerequisites:** (MATH 4450 with a minimum grade of C- and MATH 3320 with a minimum grade of C-) or (MATH 4450 with a minimum grade of C- and MATH 4330 with a minimum grade of C-)

**Term Offered:** Spring

**MATH 4540 Classical Differential Geometry I**

[3 credit hours]

Smooth curves in Euclidean space including the Frenet formulae. Immersed surfaces with the Gauss map, principal curvatures and the fundamental forms. Special surfaces including ruled surfaces and minimal surfaces. Intrinsic Geometry including the Gauss Theorem Egregium.

**Prerequisites:** MATH 2860 with a minimum grade of C-

**MATH 4550 Classical Differential Geometry II**

[3 credit hours]

Tensors, vector fields, and the Cartan approach to surface theory, Bonnet's Theorem and the construction of surfaces via solutions of the Gauss Equation. Geodesics parallel transport, and Jacobi Fields. Theorems of a global nature such as Hilbert's Theorem or the Theorem of Hopf-Rinow.

**Prerequisites:** MATH 4540 with a minimum grade of C-

**MATH 4600 Advanced Statistical Methods I**

[3 credit hours]

Basics of descriptive statistics, study designs and statistical inference.

Properties of, and assumptions required for, inference for means, variances, and proportions from one and two-sample paired and unpaired studies. Introduction to ANOVA with multiple comparisons. Model assessment and diagnostics. Statistical software will be employed.

Opportunities to apply procedures to real data. Emphasis placed on the foundations to approaches in introductory statistics.

**Prerequisites:** MATH 2600 with a minimum grade of D- or MATH 2640 with a minimum grade of D- or MATH 3610 with a minimum grade of D- or MATH 4690 with a minimum grade of D-

**Term Offered:** Fall

**MATH 4610 Applications Of Statistics II**

[3 credit hours]

Continuation of Applications of Statistics I.

**Prerequisites:** MATH 4600 with a minimum grade of C-

**Term Offered:** Spring

**MATH 4620 Theory Of Interest**

[3 credit hours]

This course covers the measurement of interest, certain annuities, yield rates, amortization and sinking funds, bonds and other securities and application of interest theory.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-

**Term Offered:** Spring, Fall

**MATH 4640 Statistical Computing**

[3 credit hours]

Modern statistical computing, including programming tools, modern programming methodologies, design of data structures and algorithms, numerical computing and graphics. Additional topics selected from simulation studies, rejection sampling, importance sampling, Monte Carlo integration, and bootstrapping.

**Prerequisites:** MATH 3610 with a minimum grade of C- or MATH 4600 with a minimum grade of C- or MATH 4690 with a minimum grade of C-

**Term Offered:** Fall

**MATH 4680 Introduction To Theory Of Probability**

[3 credit hours]

Probability spaces, random variables, probability distributions, moments and moment generating functions, limit theorems, transformations and sampling distributions.

**Prerequisites:** MATH 2850 with a minimum grade of C-

**Term Offered:** Summer, Fall

**MATH 4690 Introduction To Mathematical Statistics**

[3 credit hours]

Sampling distributions, point and interval estimation, hypothesis testing, regression and analysis of variance.

**Prerequisites:** MATH 4680 with a minimum grade of C-

**Term Offered:** Spring

**MATH 4710 Methods Of Numerical Analysis I**

[3 credit hours]

Floating point arithmetic; polynomial interpolation; numerical solution of nonlinear equations; Newton's method. Likely topics include: numerical differentiation and integration; solving systems of linear equations; Gaussian elimination; LU decomposition; Gauss-Seidel method.

**Prerequisites:** MATH 2860 with a minimum grade of C-

**Term Offered:** Spring, Fall

**MATH 4720 Methods Of Numerical Analysis II**

[3 credit hours]

Likely topics include: Computation of eigenvalues and eigenvectors; solving systems of nonlinear equations; least squares approximations; rational approximations; cubic splines; fast Fourier transforms; numerical solutions to initial value problems; ordinary and partial differential equations.

**Prerequisites:** MATH 4710 with a minimum grade of C-

**Term Offered:** Spring

**MATH 4760 Actuarial Mathematics I**

[3 credit hours]

Survival distributions and life tables, life insurance, life annuities, benefit premiums and reserves and multiple life functions are some topics covered in this course.

**Prerequisites:** MATH 4680 with a minimum grade of C-

**Term Offered:** Fall

**MATH 4770 Actuarial Mathematics II**

[3 credit hours]

Continuation of Actuarial Mathematics I. Multiple decrement models, collective risk models and applications of risk theory.

**Prerequisites:** MATH 4760 with a minimum grade of C-

**Term Offered:** Spring

**MATH 4780 Advanced Calculus**

[3 credit hours]

Extrema for functions of one or more variables, Lagrange multipliers, indeterminate forms, inverse and implicit function theorems, uniform convergences, power series, transformations, Jacobians, multiple integrals.

**Prerequisites:** MATH 2850 with a minimum grade of C-

**MATH 4800 Ordinary Differential Equations**

[3 credit hours]

Modern theory of differential equations; transforms and matrix methods; existence theorems and series solutions; and other selected topics.

**Prerequisites:** MATH 2860 with a minimum grade of C-

**Term Offered:** Spring, Fall

**MATH 4810 Partial Differential Equations**

[3 credit hours]

First and second order equations; numerical methods; separation of variables; solutions of heat and wave equations using eigenfunction techniques; and other selected topics.

**Prerequisites:** MATH 2860 with a minimum grade of C-

**Term Offered:** Spring

**MATH 4820 Introduction To Real Analysis I**

[3 credit hours]

The real number system; continuity and differentiability of functions; convergence of sequences and series; applications.

**Prerequisites:** MATH 2190 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Fall

**MATH 4830 Introduction To Real Analysis II**

[3 credit hours]

Riemann Integral; limits of functions; elementary metric space theory including compactness, connectedness and completeness. Optional topics include differentiable functions on  $R^n$ ; the Implicit and Inverse Function Theorems.

**Prerequisites:** MATH 4820 with a minimum grade of C-

**Term Offered:** Spring

**MATH 4880 Complex Variables**

[3 credit hours]

Analytic functions; Cauchy's theorem; Taylor and Laurent series; residues; contour integrals; conformal mappings, analytic continuation and applications.

**Prerequisites:** MATH 2860 with a minimum grade of C-

**Term Offered:** Spring

**MATH 4900 Senior Seminar**

[1-3 credit hours]

Seminar on a topic not usually covered in a course. Library research and paper to be expected.

**Term Offered:** Spring, Summer, Fall

**MATH 4920 Senior Readings**

[1-3 credit hours]

Selected subjects in mathematics of special interest to students and the professor. (By arrangement with professor and student.)

**Term Offered:** Spring, Summer, Fall

**MATH 4940 Internship in the Mathematical Sciences**

[3 credit hours]

MATH 4940 Co-Op Experience [3 credit hours] Approved internship experience. Course may be repeated for credit with departmental permission. Terms Offered: Spring, Summer, Fall

**Term Offered:** Spring, Summer, Fall

**MATH 4960 Actuarial Science Problem Seminar**

[1-3 credit hours]

The primary activity will be student solution and presentation of problems of a type given on actuarial exams.

**Term Offered:** Spring, Fall

## Honors in Mathematics

- Admission:** Students are normally admitted to departmental honors after completing honors sections of:

Code	Title	Hours
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4

In addition Departmental Honors requires students to enroll in 3 additional honors sections of courses in the major numbered 2190 or higher.

**Total Hours**

9  
17

Students may also be admitted to the program at the discretion of the Math Majors Committee and should consult the departmental undergraduate advisor.

2. **Requirements:** Graduation with honors in mathematics depends upon doing a substantial amount of work in mathematics beyond the requirements of the bachelor's degree. To graduate with departmental honors in mathematics a student must ordinarily maintain a GPA in mathematics greater than 3.5 and write an expository paper on a topic in mathematics that demonstrates knowledge of the subject matter significantly beyond the expectations of the student's course work. The research and writing of the paper is conducted under the supervision of a faculty member with an interest in the subject, and as a part of fulfilling this requirement the student must enroll in either the junior or senior reading class, MATH 3920 or MATH 4920, that counts as an elective in the major. The actual details of the student's program are determined by consulting with the Department's honors advisor and the student's topic supervisor.

## BS in Mathematics

The Bachelor of Science degree in Mathematics requires a minimum of 120 hours of coursework, with a minimum of 38 credits of MATH courses, including those in a specific BS concentration. In addition 26 hours of course work in a specific related area must be included.

### BS in Mathematics with a concentration in Pure Mathematics

Prepares students for further study in mathematics at the graduate level, for jobs in service or public sectors where a high level of quantitative skills is prerequisite, particularly in the financial industry, or with further pedagogical training for careers as secondary educators. The concentration provides the foundation for an appreciation of the broad area of modern mathematics namely topology/geometry, algebra and analysis.

### BS in Mathematics with a concentration in Applied Mathematics

Prepares students for further study in applied mathematics at the graduate level, for jobs in industrial, service or public sectors where a high level of quantitative skills is prerequisite. Examples of such career path include technical mathematicians, financial analysts, software engineers. The concentration provides the foundation for an understanding of the theoretical and computational principles of applied mathematics with an emphasis on modeling real world phenomena.

### BS in Mathematics with a concentration in Statistics

Prepares students for further study in statistics at the graduate level, for jobs in industrial, service or public sectors where a knowledge of statistics is prerequisite. Examples of such career path include business or financial analysts, data scientists, or market researchers.

The concentration provides the foundation for understanding of both the theory and applications of statistics, including the application of

statistical methodology to real world problems and the proficient use of statistical software.

### BS in Mathematics with a concentration in Applied Mathematics with Computer Science

Prepares students for further study in applied mathematics or computer science at the graduate level, for jobs in the industrial, service or public sectors where a high level of quantitative skills is combined with knowledge of computing is prerequisite. Examples of such career path include technical mathematicians, financial analysts, software engineers. The concentration provides foundation for an understanding of the theoretical and computational principles of applied mathematics with emphasis on the coding skills needed to solve real world problems.

### BS in Mathematics with a concentration in Actuarial Science

Prepares students to enter the actuarial profession. Actuaries work in finance, business and government and are concerned with the estimation of risk. They make a crucial contribution in the insurance industry. The concentration provides the foundations in mathematics and finance needed to pass the examinations offered by the Society of Actuaries that are the gateway to the profession.

### BS in Mathematics with a concentration in Data Science

Prepares student for further study of data science at the graduate level, for jobs business, industry and government that require a thorough understand for the statistical and computational principles required to extract information from data. Examples of career path include data scientist, business or financial analyst, security analyst, or research assistant in various biomedical fields. The concentration provides the foundations for both the computational skills needed to manipulate data and the statistical background needed to analyze it.

For the Bachelor of Science degree in mathematics, a minimum of 38 credits of MATH courses, including those in a specific BS concentration must be completed. In addition 26 hours of course work in a specific related area must be included.

## Pure Mathematics Concentration

The following courses must be included:

MATH 1840 Calculus II For Mathematicians, Scientists And Educators or MATH 1860 Single Variable Calculus II  
MATH 1890 Elementary Linear Algebra or MATH 2890 Numerical Methods And Linear Algebra  
MATH 2850 Elementary Multivariable Calculus  
MATH 2190 Foundations of Mathematics or MATH 3190 Introduction To Mathematical Analysis

### Pure Mathematics Courses

MATH 2860 Elementary Differential Equations  
MATH 4330 Abstract Algebra I  
MATH 4820 Introduction To Real Analysis I  
MATH 4880 Complex Variables

Select one of the following:

MATH 4300 Linear Algebra I  
MATH 4450 Introduction To Topology I  
MATH 4540 Classical Differential Geometry I



Select one of the following:

MATH 4830 Introduction To Real Analysis II

MATH 4340 Abstract Algebra II

Two advanced MATH courses for 6 credits at the 3000 or 4000 level approved by the advisor

### RELATED COURSES IN BACHELOR OF SCIENCE

The 24 semester hours of related area course work should be chosen according to the interests of the student in view of his or her anticipated career in mathematics. These courses could be in Accounting, Astronomy, Biology, Chemistry, Economics, Environmental Science, Engineering, Finance, Operations Analysis, Philosophy, Physics, Pharmacy and Pharmaceutical Sciences, Medicine and Life Sciences.

Choices include courses numbered 2000 to 4990 for the following departments: ACCT, ASTR, BUAD, BIOE, CHEE, CHEM, CIVE, EBUS, EEES, FINA, GEOL, IBUS, IE, INBT, INBY, ISOM, ME, MIME, MGMT, MKTG, NASC, PHYS, PSLs, and TE; plus BIOL 2150 to 2180, 3000 to 4000; ECON 1150, 1200, 2000 to 4990; EECS 1100 to 4990.

### COMBINED BACHELORS'S TO MASTER'S - BS to MS in Mathematics

Undergraduate students accepted to the BS to MS in Mathematics program option will be admitted to the MS in Mathematics and allowed to complete up to three graduate-level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to the completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2)

MATH 5330 Abstract Algebra I, MATH 5340 Abstract Algebra II, MATH 5450 Introduction to Topology I, MATH 5460 Introduction to Topology II, MATH 5820 Introduction to Real Analysis I, MATH 5830 Introduction to Real Analysis II, MATH 5880 Introduction to Complex Variables, may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

### Applied Mathematics Concentration

The following courses must be included:

MATH 1840 Calculus II For Mathematicians, Scientists And Educators

or MATH 1860 Single Variable Calculus II

MATH 1890 Elementary Linear Algebra or MATH 2890 Numerical Methods And Linear Algebra

MATH 2850 Elementary Multivariable Calculus

MATH 2190 Foundations of Mathematics or MATH 3190 Introduction To Mathematical Analysis

### Applied Mathematics Courses:

MATH 3320 Introduction To Abstract Algebra or MATH 4330 Abstract Algebra I

MATH 2860 Elementary Differential Equations

MATH 4300 Linear Algebra I or MATH 4350 Applied Linear Algebra

MATH 4820 Introduction To Real Analysis I or MATH 4880 Complex Variables

Select one of the following two-semester sequences:

MATH 4710 Methods Of Numerical Analysis I & MATH 4720 Methods Of Numerical Analysis II

MATH 4740 Advanced Applied Mathematics I & MATH 4750 Advanced Applied Mathematics II

Select one of the following:

MATH 3610 Statistical Methods I

MATH 4680 Introduction To Theory Of Probability

MATH 4800 Ordinary Differential Equations

MATH 4810 Partial Differential Equations

MATH 4860 Calculus Of Variations And Optimal Control I

One advanced MATH elective course for 3 credits at the 3000 or 4000 level approved by the advisor.

### RELATED COURSES IN BACHELOR OF SCIENCE

The 24 semester hours of related area course work should be chosen according to the interests of the student in view of his or her anticipated career in mathematics. These courses could be in Accounting, Astronomy, Biology, Chemistry, Economics, Environmental Science, Engineering, Finance, Operations Analysis, Philosophy, Physics, Pharmacy and Pharmaceutical Sciences, Medicine and Life Sciences.

Choices include courses numbered 2000 to 4990 for the following departments: ACCT, ASTR, BUAD, BIOE, CHEE, CHEM, CIVE, EBUS, EEES, FINA, GEOL, IBUS, IE, INBT, INBY, ISOM, ME, MIME, MGMT, MKTG, NASC, PHYS, PSLs, and TE; plus BIOL 2150 to 2180, 3000 to 4000; ECON 1150, 1200, 2000 to 4990; EECS 1100 to 4990.

### COMBINED BACHELORS'S TO MASTER'S - BS to MS in Mathematics

Undergraduate students accepted to the **BS to MS in Mathematics** program option will be admitted to the **MS in Mathematics with a concentration in Applied Mathematics** and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in to the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2)

MATH 5710 Methods Of Numerical Analysis I, MATH 5720 Methods Of Numerical Analysis II, MATH 5820 Introduction to Real Analysis I, MATH 5830 Introduction to Real Analysis II, MATH 5880 Introduction to Complex Variables, MATH 5800 Ordinary Differential Equations, MATH 5810 Partial Differential Equations, may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

## Statistics Concentration

The following courses must be included:

MATH 1840 Calculus II For Mathematicians, Scientists And Educators or MATH 1860 Single Variable Calculus II  
MATH 1890 Elementary Linear Algebra or MATH 2890 Numerical Methods And Linear Algebra  
MATH 2850 Elementary Multivariable Calculus  
MATH 2190 Foundations of Mathematics or MATH 3190 Introduction To Mathematical Analysis

### Statistics Courses:

MATH 3610 Statistical Methods I  
MATH 3620 Statistical Methods II  
MATH 4350 Applied Linear Algebra  
MATH 4600 Advanced Statistical Methods I  
MATH 4610 Applications Of Statistics II  
MATH 4680 Introduction To Theory Of Probability  
MATH 4690 Introduction To Mathematical Statistics  
MATH 2860 or one advanced MATH elective course for 3 credits at the 3000 or 4000 level approved by the advisor.

## RELATED COURSES IN BACHELOR OF SCIENCE

The 24 semester hours of related area course work should be chosen according to the interests of the student in view of his or her anticipated career in mathematics. These courses could be in Accounting, Astronomy, Biology, Chemistry, Economics, Environmental Science, Engineering, Finance, Operations Analysis, Philosophy, Physics, Pharmacy and Pharmaceutical Sciences, Medicine and Life Sciences.

Choices include courses numbered 2000 to 4990 for the following departments: ACCT, ASTR, BUAD, BIOE, CHEE, CHEM, CIVE, EBUS, EEES, FINA, GEOL, IBUS, IE, INBT, INBY, ISOM, ME, MIME, MGMT, MKTG, NASC, PHYS, PSLs, and TE; plus BIOL 2150 to 2180, 3000 to 4000; ECON 1150, 1200, 2000 to 4990; EECS 1100 to 4990.

## COMBINED BACHELORS'S TO MASTER'S - BS to MS in Mathematics

Undergraduate students accepted to the BS to MS in Mathematics program option will be admitted to the MS in Mathematics with a concentration in Statistics and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in to the graduate program upon completion of the undergraduate

degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2)

MATH 5600 Advanced Statistics Methods I, MATH 5610 Advanced Statistical Methods II, MATH 5620 Linear Statistics Models, MATH 5640 Statistical Computing, MATH 5680 Introduction to the Theory of Probability, MATH 5690 Introduction to Mathematics Statistics, may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

## Mathematics with Computer Science Concentration

The following courses must be included:

MATH 1840 Calculus II For Mathematicians, Scientists And Educators or MATH 1860 Single Variable Calculus II  
MATH 1890 Elementary Linear Algebra or MATH 2890 Numerical Methods And Linear Algebra  
MATH 2850 Elementary Multivariable Calculus  
MATH 2190 Foundations of Mathematics or MATH 3190 Introduction To Mathematical Analysis

### Computer Science Courses:

MATH 2860 Elementary Differential Equations  
MATH 4380 Discrete Structures And Analysis Of Algorithms  
MATH 4710 Methods Of Numerical Analysis I  
MATH 3320 Introduction To Abstract Algebra or MATH 4330 Abstract Algebra I  
MATH 4820 Introduction To Real Analysis I or MATH 4880 Complex Variables

Select one of the following:

MATH 4350 Applied Linear Algebra  
MATH 4720 Methods Of Numerical Analysis II

Two advanced MATH courses for 6 credits at the 3000 or 4000 level approved by the advisor

The related area courses should include a total of 18 hours in EECS courses from EECS 1100 - EECS 4990. At least two of these courses should be from EECS 2500 or the 3000 or 4000 level as approved by the advisor.

## RELATED COURSES IN BACHELOR OF SCIENCE

The 24 semester hours of related area course work should be chosen according to the interests of the student in view of his or her anticipated career in mathematics. These courses could be in Accounting, Astronomy, Biology, Chemistry, Economics, Environmental Science,

Engineering, Finance, Operations Analysis, Philosophy, Physics, Pharmacy and Pharmaceutical Sciences, Medicine and Life Sciences.

Choices include courses numbered 2000 to 4990 for the following departments: ACCT, ASTR, BUAD, BIOE, CHEE, CHEM, CIVE, EBUS, EEES, FINA, GEOL, IBUS, IE, INBT, INBY, ISOM, ME, MIME, MGMT, MKTG, NASC, PHYS, PSLs, and TE; plus BIOL 2150 to 2180, 3000 to 4000; ECON 1150, 1200, 2000 to 4990; EECS 1100 to 4990.

### COMBINED BACHELORS'S TO MASTER'S - BS to MS in Mathematics

Undergraduate students accepted to the BS to MS in Mathematics program option will be admitted to the MS in Mathematics with a concentration in Applied Mathematics and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in to the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2)

MATH 5710 Methods Of Numerical Analysis I, MATH 5720 Methods Of Numerical Analysis II, MATH 5820 Introduction to Real Analysis I, MATH 5830 Introduction to Real Analysis II, MATH 5880 Introduction to Complex Variables, MATH 5800 Ordinary Differential Equations, MATH 5810 Partial Differential Equations, may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

### **Actuarial Sciences Concentration**

The following courses must be included:

MATH 1840 Calculus II For Mathematicians, Scientists And Educators or MATH 1860 Single Variable Calculus II  
MATH 1890 Elementary Linear Algebra or MATH 2890 Numerical Methods And Linear Algebra  
MATH 2850 Elementary Multivariable Calculus  
MATH 2190 Foundations of Mathematics or MATH 3190 Introduction To Mathematical Analysis

#### **Actuarial Science Courses:**

MATH 3610 Statistical Methods I  
MATH 3620 Statistical Methods II  
MATH 2860 Elementary Differential Equations  
MATH 4620 Theory Of Interest  
MATH 4680 Introduction To Theory Of Probability

MATH 4690 Introduction To Mathematical Statistics

MATH 4760 Actuarial Mathematics I

MATH 4770 Actuarial Mathematics II

The related area courses should include the following:

ECON 1150 Principles Of Macroeconomics

ECON 1200 Principles Of Microeconomics

BUAD 1020 Micro-Computer Applications In Business

BUAD 2040 Financial Accounting Information

BUAD 2050 Accounting For Business Decision-Making

BUAD 3040 Principles Of Financial Management

FINA 3600 Risk Management

INFS 3150 Principles Of Structured Computer Programming And Problem Solving

### **RELATED COURSES IN BACHELOR OF SCIENCE**

The 24 semester hours of related area course work should be chosen according to the interests of the student in view of his or her anticipated career in mathematics. These courses could be in Accounting, Astronomy, Biology, Chemistry, Economics, Environmental Science, Engineering, Finance, Operations Analysis, Philosophy, Physics, Pharmacy and Pharmaceutical Sciences, Medicine and Life Sciences.

Choices include courses numbered 2000 to 4990 for the following departments: ACCT, ASTR, BUAD, BIOE, CHEE, CHEM, CIVE, EBUS, EEES, FINA, GEOL, IBUS, IE, INBT, INBY, ISOM, ME, MIME, MGMT, MKTG, NASC, PHYS, PSLs, and TE; plus BIOL 2150 to 2180, 3000 to 4000; ECON 1150, 1200, 2000 to 4990; EECS 1100 to 4990.

### COMBINED BACHELORS'S TO MASTER'S - BS to MS in Mathematics

Undergraduate students accepted to the BS to MS in Mathematics program option will be admitted to the MS in Mathematics with a concentration in Statistics and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in to the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2)

MATH 5600 Advanced Statistics Methods I, MATH 5610 Advanced Statistical Methods II, MATH 5620 Linear Statistics Models, MATH 5640 Statistical Computing, MATH 5680 Introduction to the Theory of Probability, MATH 5690 Introduction to Mathematics Statistics may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the

[combined program must submit a graduate admission application to the College of Graduate Studies.](#)

## Data Science Concentration

The following courses must be included:

MATH 1840 Calculus II For Mathematicians, Scientists And Educators  
or MATH 1860 Single Variable Calculus II  
MATH 1890 Elementary Linear Algebra or MATH 2890 Numerical  
Methods And Linear Algebra  
MATH 2850 Elementary Multivariable Calculus  
MATH 2190 Foundations of Mathematics or MATH 3190 Introduction To  
Mathematical Analysis

### Data Science Courses:

MATH 1980 Topics in Mathematics: Intro to Data Science  
MATH 2860 Elementary Differential Equations  
MATH 3610 Statistical Methods I  
MATH 3620 Statistical Methods II  
MATH 4350 Applied Linear Algebra  
MATH 4600 Advanced Statistical Methods I  
MATH 4610 Applications Of Statistics II  
MATH 4640 Statistical Computing  
MATH 4680 Introduction To Theory Of Probability  
MATH 4690 Introduction To Mathematical Statistics  
MATH 4940 Internship

The related area courses should include the following:

PHIL 1010 Introduction to Logic  
EECS 1510 Object Oriented Programming  
EECS 2500 Linear Data Structures  
EECS 2510 Nonlinear Data Structures  
EECS 2520 Discrete Structures  
EECS 4560 Database Structure  
EECS 4590 Algorithms  
EECS 4740 Artificial Intelligence  
EECS 4750 Machine Learning

### Related Courses in Bachelor of Science

The 26 semester hours of related area course work should be chosen according to the interests of the student in view of his or her anticipated career in mathematics. These courses could be in Accounting, Astronomy, Biology, Chemistry, Economics, Environmental Science, Engineering, Finance, Operations Analysis, Philosophy, Physics, Pharmacy and Pharmaceutical Sciences, Medicine and Life Sciences.

Choices include courses numbered 2000 to 4990 for the following departments: ACCT, ASTR, BUAD, BIOE, CHEE, CHEM, CIVE, EBUS, EEES, FINA, GEOL, IBUS, IE, INBT, INBY, ISOM, ME, MIME, MGMT, MKTG, NASC, PHYS, PSLS, and TE; plus BIOL 2150 to 2180, 3000 to 4000; ECON 1150, 1200, 2000 to 4990; EECS 1100 to 4990.

## BACHELOR OF SCIENCE IN MATHEMATICS

- Pure Mathematics Concentration (p. 428)
- Applied Mathematics Concentration (p. 430)
- Statistics Concentration (p. 433)
- Mathematics With Computer Science Concentration (p. 431)

- Actuarial Sciences Concentration (p. 435)
- Data Science Concentration (p. 436)

## Bachelor of Science in Mathematics: Concentration: Pure Mathematics

Below is a sample plan of study. Consult your degree audit for your program requirements.

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
MATH 1830 or MATH 1850	Calculus I For Mathematicians, Scientists And Educators or Single Variable Calculus I	4
ENGL 1110	College Composition I	3
Natural Sciences Core		4
Natural Science Core Laboratory		1
<b>Hours</b>		<b>14</b>
Second Term		Hours
MATH 1840 or MATH 1860	Calculus II For Mathematicians, Scientists And Educators or Single Variable Calculus II	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		3
Social Sciences Core		3
Diversity of US		3
<b>Hours</b>		<b>16</b>
Third Term		Hours
MATH 2850	Elementary Multivariable Calculus	4
MATH 3190 or MATH 2190	Introduction To Mathematical Analysis or Foundations of Mathematics	3
Non-US Diversity		3
Arts/Humanities Core		3
NSM Science Elective		4
<b>Hours</b>		<b>17</b>
Fourth Term		Hours
MATH 3320	Introduction To Abstract Algebra <sup>1</sup>	3
MATH 2860	Elementary Differential Equations	3
MATH 1890 or MATH 2890	Elementary Linear Algebra or Numerical Methods And Linear Algebra	3
Related Field		4
<b>Hours</b>		<b>13</b>
Fifth Term		Hours
MATH 4330 or MATH 4820	Abstract Algebra I or Introduction To Real Analysis I	3
NSM Science Elective		3
Arts/Humanities Core		3
Elective		3

Related Elective	3
<b>Hours</b>	<b>15</b>
<b>Sixth Term</b>	
MATH 4880 Complex Variables	3
MATH 4340 Abstract Algebra II or MATH 4830 or Introduction To Real Analysis II	3
Social Sciences Core/NSM Science Elective	6
Writing Across the Curriculum (WAC)	3
<b>Hours</b>	<b>15</b>
<b>Seventh Term</b>	
MATH 4820 Introduction To Real Analysis I or MATH 4330 or Abstract Algebra I	3
Select one of the following:	3
MATH 4450 Introduction To Topology I	
MATH 4300 Linear Algebra I	
MATH 4540 Classical Differential Geometry I	
Advanced Math Elective	3
Related Electives	6
<b>Hours</b>	<b>15</b>
<b>Eighth Term</b>	
Advanced Math Elective	3
Elective <sup>1</sup>	3
Related Electives	9
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>120</b>

Below is the plan of study for BS to MS in Mathematics pipeline program. For more information on course selection consult with you advisor.

<b>First Term</b>		<b>Hours</b>
NSM 1000 Foundations of Academic Success for Science and Math Majors	2	
MATH 1830 Calculus I For Mathematicians, Scientists or MATH 1850 And Educators or Single Variable Calculus I	4	
ENGL 1110 College Composition I	3	
Natural Sciences Core	4	
Natural Sciences Laboratory	1	
<b>Hours</b>	<b>14</b>	
<b>Second Term</b>		
MATH 1840 Calculus II For Mathematicians, Scientists or MATH 1860 And Educators or Single Variable Calculus II	4	
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3	
Natural Sciences Core	3	
Social Sciences Core	3	
Diversity of US	3	
<b>Hours</b>	<b>16</b>	
<b>Third Term</b>		
MATH 2850 Elementary Multivariable Calculus	4	

MATH 3190 Introduction To Mathematical Analysis or MATH 2190 or Foundations of Mathematics	3
Non-US Diversity	3
Arts/Humanities Core	3
NSM Science Elective	4
<b>Hours</b>	<b>17</b>
<b>Fourth Term</b>	
MATH 2860 Elementary Differential Equations	3
MATH 1890 Elementary Linear Algebra or MATH 2890 or Numerical Methods And Linear Algebra	3
NSM Science Elective	4
Related Fields	3
<b>Hours</b>	<b>13</b>
<b>Fifth Term</b>	
MATH 4330 Abstract Algebra I (or MATH 4820 Intro to Real Analysis I or MATH 4450 Intro to Topology I)	3
MATH 4300 Linear Algebra I	3
Arts/Humanities Core	3
Elective	3
Related Fields	3
<b>Hours</b>	<b>15</b>
<b>Sixth Term</b>	
MATH 4340 Abstract Algebra II (or MATH 4830 Intro to Real Analysis II or MATH 4460 Intro to Topology II)	3
Related Field or Elective	3
Social Sciences Core	3
NSM Science Elective	3
Writing Across the Curriculum (WAC) Non-major	3
<b>Hours</b>	<b>15</b>
<b>Seventh Term</b>	
MATH 5330 Abstract Algebra I (or MATH 5450 Intro to Topology I or MATH 5830 Intro to Real Analysis I)	3
Advanced Math Electives	6
Related Fields	6
<b>Hours</b>	<b>15</b>
<b>Eighth Term</b>	
MATH 5340 Abstract Algebra II (or MATH 5460 Intro to Topology II or MATH 5830 Intro to Real Analysis II)	3
MATH 5880 Complex Variables	3
Related Fields or Electives	9
<b>Hours</b>	<b>15</b>
<b>Ninth Term</b>	
Summer Semester	
Graduate Summer Topics Class	3
<b>Hours</b>	<b>3</b>



<b>Tenth Term</b>		
MATH 6800	Real Analysis I (or MATH6300 Algebra I or MATH 6400 Topology I)	3
MATH 5820	Introduction To Real Analysis I (or MATH 5330 Abstract Algebra I or MATH 5450 Intro to Topology I)	3
Graduate Math Elective		3
<b>Hours</b>		<b>9</b>
<b>Eleventh Term</b>		
MATH 6810	Real Analysis II (or MATH 6310 Algebra II or MATH6410 Topology II)	3
MATH 5830	Introduction To Real Analysis II (or MATH 5340 Abstract Algebra II or MATH 5460 Intro to Topology II)	3
Graduate Math Elective		3
<b>Hours</b>		<b>9</b>
<b>Total Hours</b>		<b>141</b>

<sup>1</sup> Recommended 3000/4000 elective

## Bachelor of Science in Mathematics: Concentration: Applied Mathematics

Below is a sample plan of study. Consult your degree audit for your program requirements.

<b>First Term</b>		<b>Hours</b>
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
MATH 1830 or MATH 1850	Calculus I For Mathematicians, Scientists And Educators or Single Variable Calculus I	4
ENGL 1110	College Composition I	3
Natural Sciences Core		4
Natural Sciences Laboratory		1
<b>Hours</b>		<b>14</b>
<b>Second Term</b>		
MATH 1840 or MATH 1860	Calculus II For Mathematicians, Scientists And Educators or Single Variable Calculus II	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		4
Social Sciences Core		3
Diversity of US		3
<b>Hours</b>		<b>17</b>
<b>Third Term</b>		
MATH 2850	Elementary Multivariable Calculus	4
MATH 3190 or MATH 2190	Introduction To Mathematical Analysis or Foundations of Mathematics	3
Non-US Diversity		3
Arts/Humanities Core		3

NSM Science Elective		3
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
MATH 2860	Elementary Differential Equations	3
MATH 3320	Introduction To Abstract Algebra (or Related Field or Elective) <sup>1</sup>	3
MATH 1890 or MATH 2890	Elementary Linear Algebra or Numerical Methods And Linear Algebra	3
Arts/Humanities Core		3
Related Field or Elective		3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
MATH 4710 or MATH 4740	Methods Of Numerical Analysis I or	3
MATH 4330	Abstract Algebra I (or Related Field or Elective)	3
NSM Science Elective		4
Related Field or Elective		3
<b>Hours</b>		<b>13</b>
<b>Sixth Term</b>		
MATH 4720 or MATH 4750	Methods Of Numerical Analysis II or	3
MATH 4880 or MATH 4820	Complex Variables or Introduction To Real Analysis I	3
Social Sciences Core		3
NSM Science Elective		3
Writing Across the Curriculum (WAC)		3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
MATH 4820 or MATH 4880	Introduction To Real Analysis I (or Related Field or Elective) or Complex Variables	3
Select one of the following:		3
MATH 3610	Statistical Methods I	
MATH 4680	Introduction To Theory Of Probability	
MATH 4800	Ordinary Differential Equations	
MATH 4810	Partial Differential Equations	
MATH 4860		
MATH 4350 or MATH 4300	Applied Linear Algebra or Linear Algebra I	3
Related Field or Elective		3
Related Field or Elective		3
<b>Hours</b>		<b>15</b>
<b>Eighth Term</b>		
MATH 4300 or MATH 4350	Linear Algebra I ( or Related Field or Elective) or Applied Linear Algebra	3
Math Elective 3000-4000 Level		3
Related Field or Elective		3
Related Field or Elective		3

Related Field or Elective	3
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>120</b>

Below is the plan of study for students in the BS to MS program. Consult your advisor for the exact sequencing of courses.

<b>First Term</b>		<b>Hours</b>
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
MATH 1830 or MATH 1850	Calculus I For Mathematicians, Scientists And Educators or Single Variable Calculus I	4
ENGL 1110	College Composition I	3
Natural Science Core		4
Natural Science Laboratory		1
<b>Hours</b>		<b>14</b>

<b>Second Term</b>		<b>Hours</b>
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1840 or MATH 1860	Calculus II For Mathematicians, Scientists And Educators or Single Variable Calculus II	4
Natural Science Core		4
Social Science Core		3
Diversity of US		3
<b>Hours</b>		<b>17</b>

<b>Third Term</b>		<b>Hours</b>
MATH 2850	Elementary Multivariable Calculus	4
MATH 3190	Introduction To Mathematical Analysis	3
Non-US Diversity		3
NSM Science Elective		3
Art/Humanities Core		3
<b>Hours</b>		<b>16</b>

<b>Fourth Term</b>		<b>Hours</b>
MATH 3320 or MATH 4330	Introduction To Abstract Algebra (or Related Field or Elective) or Abstract Algebra I	3
MATH 2860	Elementary Differential Equations	3
MATH 1890 or MATH 2890	Elementary Linear Algebra or Numerical Methods And Linear Algebra	3
Art/Humanities Core		3
Related Field or Elective		3
<b>Hours</b>		<b>15</b>

<b>Fifth Term</b>		<b>Hours</b>
MATH 4710	Methods Of Numerical Analysis I	3
MATH 4330 or MATH 3320	Abstract Algebra I (or Related Field or Elective) or Introduction To Abstract Algebra	3
NSM Science Elective		3

Related Field or Elective	3	
<b>Hours</b>	<b>12</b>	
<b>Sixth Term</b>		
MATH 4720	Methods Of Numerical Analysis II	3
Social Science Core		3
NSM Science Elective		4
Non Departmental Writing Across the Curriculum (WAC)		3
Related Field or Elective		3
<b>Hours</b>		<b>16</b>

<b>Seventh Term</b>		<b>Hours</b>
MATH 5820	Introduction To Real Analysis I	3
MATH 4300 or MATH 4350	Linear Algebra I (or Related Field or Elective) or Applied Linear Algebra	3
MATH 4800	Ordinary Differential Equations	3
Related Field or Elective		6
<b>Hours</b>		<b>15</b>

<b>Eighth Term</b>		<b>Hours</b>
MATH 4350 or MATH 4300	Applied Linear Algebra (Or Related Field or Elective) or Linear Algebra I	3
MATH 5830	Introduction To Real Analysis II	3
MATH 5810	Partial Differential Equations	3
Related Field or Elective		6
<b>Hours</b>		<b>15</b>

<b>Ninth Term</b>		<b>Hours</b>
Summer Semester		
MATH 6980	Topics In Mathematical Sciences	3
<b>Hours</b>		<b>3</b>

<b>Tenth Term</b>		<b>Hours</b>
MATH 6500	Ordinary Differential Equations	3
Graduate Math Elective		6
<b>Hours</b>		<b>9</b>

<b>Eleventh Term</b>		<b>Hours</b>
MATH 6510	Partial Differential Equations	3
MATH 5880	Complex Variables	3
Graduate Math Elective		3
<b>Hours</b>		<b>9</b>
<b>Total Hours</b>		<b>141</b>

<sup>1</sup> May take MATH 4330 instead in fall semester.

## Bachelor of Science in Mathematics: Concentration: Computer Science

Below is a sample program of study. Consult your degree audit for your program requirements.

<b>First Term</b>		<b>Hours</b>
NSM 1000	Foundations of Academic Success for Science and Math Majors	2



MATH 1830 or MATH 1850	Calculus I For Mathematicians, Scientists And Educators or Single Variable Calculus I	4
ENGL 1110	College Composition I	3
Natural Science Core		4
Natural Science Core Laboratory		1
<b>Hours</b>		<b>14</b>
<b>Second Term</b>		
MATH 1840 or MATH 1860	Calculus II For Mathematicians, Scientists And Educators or Single Variable Calculus II	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Science Core		4
Social Science Core		3
Diversity of US		3
<b>Hours</b>		<b>17</b>
<b>Third Term</b>		
MATH 2850	Elementary Multivariable Calculus	4
MATH 3190 or MATH 2190	Introduction To Mathematical Analysis or Foundations of Mathematics	3
Non-US Diversity		3
NSM Science Elective		3
Arts/Humanities Core		3
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
MATH 3320 or MATH 4330	Introduction To Abstract Algebra (or Related Field or Elective) or Abstract Algebra I	3
MATH 2860	Elementary Differential Equations	3
MATH 1890 or MATH 2890	Elementary Linear Algebra or Numerical Methods And Linear Algebra	3
Arts/Humanities Core		3
EECS elective		3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
MATH 4710	Methods Of Numerical Analysis I	3
MATH 4330 or MATH 3320	Abstract Algebra I (or Related Field or Elective) or Introduction To Abstract Algebra	3
NSM Science Elective		3
EECS elective		3
<b>Hours</b>		<b>12</b>
<b>Sixth Term</b>		
MATH 4720 or MATH 4350	Methods Of Numerical Analysis II or Applied Linear Algebra	3
MATH 4880 or MATH 4820	Complex Variables (or Related Field or Elective) or Introduction To Real Analysis I	3
Social Sciences Core		3

EECS elective		3
Writing Across the Curriculum (WAC)		3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
MATH 4380	Discrete Structures And Analysis Of Algorithms	3
EECS 2500	Linear Data Structures (or EECS 3000- 4000 level)	4
MATH 4820 or MATH 4880	Introduction To Real Analysis I (or Math Elective 3000-4000 Level) or Complex Variables	3
EECS elective		3
NSM Science Elective		3
<b>Hours</b>		<b>16</b>
<b>Eighth Term</b>		
Math Elective 3000-4000 Level		3
EECS 3000-4000 level course or EECS 2500		3
Related Field or Elective		3
Related Field or Elective		3
Related Field or Elective		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>120</b>

Below is the plan of study for students in the BS to MS program. Consult your advisor for the exact sequencing of courses.

		<b>Hours</b>
<b>First Term</b>		
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
MATH 1830 or MATH 1850	Calculus I For Mathematicians, Scientists And Educators or Single Variable Calculus I	4
ENGL 1110	College Composition I	3
Natural Sciences Core		4
Natural Sciences Laboratory		1
<b>Hours</b>		<b>14</b>
<b>Second Term</b>		
MATH 1840 or MATH 1860	Calculus II For Mathematicians, Scientists And Educators or Single Variable Calculus II	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		4
Social Sciences Core		3
Diversity of US		3
<b>Hours</b>		<b>17</b>
<b>Third Term</b>		
MATH 2850	Elementary Multivariable Calculus	4
MATH 3190 or MATH 2190	Introduction To Mathematical Analysis or Foundations of Mathematics	3
Non-US Diversity		3
NSM Science Elective		3



Arts/Humanities Core	3
<b>Hours</b>	<b>16</b>
<b>Fourth Term</b>	
MATH 3320 Introduction To Abstract Algebra (or or MATH 4330 Related Field or Elective) or Abstract Algebra I	3
MATH 2860 Elementary Differential Equations	3
MATH 1890 Elementary Linear Algebra or MATH 2890 or Numerical Methods And Linear Algebra	3
Arts/Humanities Core	3
EECS Elective	3
<b>Hours</b>	<b>15</b>
<b>Fifth Term</b>	
MATH 4710 Methods Of Numerical Analysis I	3
MATH 4330 Abstract Algebra I (or Related Field or or MATH 3320 Elective) or Introduction To Abstract Algebra	3
NSM Science Elective	3
EECS Elective	3
<b>Hours</b>	<b>12</b>
<b>Sixth Term</b>	
MATH 4720 Methods Of Numerical Analysis II	3
MATH 4880 Complex Variables (or Related Field or or MATH 4820 Elective) or Introduction To Real Analysis I	3
Social Science Core	3
EECS Elective	3
Writing Across the Curriculum (WAC)	3
<b>Hours</b>	<b>15</b>
<b>Seventh Term</b>	
MATH 4380 Discrete Structures And Analysis Of Algorithms	3
EECS 2500 Linear Data Structures (or EECS 3000-4000 level course)	4
MATH 5820 Introduction To Real Analysis I	3
MATH 4800 Ordinary Differential Equations	3
NSM Science Elective	3
<b>Hours</b>	<b>16</b>
<b>Eighth Term</b>	
MATH 5830 Introduction To Real Analysis II	3
MATH 5810 Partial Differential Equations	3
MATH 4350 Applied Linear Algebra	3
EECS 3000-4000 level course or EECS 2500	3
Elective or related field	3
<b>Hours</b>	<b>15</b>
<b>Ninth Term</b>	
Summer Semester	
Graduate Summer Topics Class	3
<b>Hours</b>	<b>3</b>

<b>Tenth Term</b>	
MATH 6500 Ordinary Differential Equations	3
Graduate Math Elective	3
Graduate Math Elective	3
<b>Hours</b>	<b>9</b>
<b>Eleventh Term</b>	
MATH 6510 Partial Differential Equations	3
MATH 5880 Complex Variables	3
Graduate Math Elective	3
<b>Hours</b>	<b>9</b>
<b>Total Hours</b>	<b>141</b>

## Bachelor of Science in Mathematics: Concentration: Statistics

Below is a sample plan of study. Consult your degree audit for your program requirements.

<b>First Term</b>		<b>Hours</b>
NSM 1000 Foundations of Academic Success for Science and Math Majors		2
MATH 1830 Calculus I For Mathematicians, Scientists or MATH 1850 And Educators or Single Variable Calculus I		4
ENGL 1110 College Composition I		3
Natural Sciences Core		4
Natural Sciences Laboratory		1
<b>Hours</b>		<b>14</b>
<b>Second Term</b>		
MATH 1840 Calculus II For Mathematicians, Scientists or MATH 1860 And Educators or Single Variable Calculus II		4
ENGL 1130 College Composition II: Academic Disciplines And Discourse		3
Natural Sciences Core		4
Social Science Core		3
Diversity of US		3
<b>Hours</b>		<b>17</b>
<b>Third Term</b>		
MATH 2850 Elementary Multivariable Calculus		4
MATH 3190 Introduction To Mathematical Analysis or MATH 2190 or Foundations of Mathematics		3
MATH 3610 Statistical Methods I		3
Non-US Diversity		3
NSM Science Elective		3
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
MATH 1890 Elementary Linear Algebra or MATH 2890 or Numerical Methods And Linear Algebra		3
MATH 3620 Statistical Methods II		3



Arts/Humanities Core	3
Social Sciences Core	3
NSM Science Elective	4
<b>Hours</b>	<b>16</b>
<b>Fifth Term</b>	
MATH 4680 Introduction To Theory Of Probability	3
NSM Science Elective	3
Arts/Humanities Core	3
Related Field or Elective	3
Related Field or Elective	3
<b>Hours</b>	<b>15</b>
<b>Sixth Term</b>	
MATH 4690 Introduction To Mathematical Statistics	3
Writing Across the Curriculum (WAC)	3
Related Field or Elective	3
Related Field or Elective	3
Related Field or Elective	3
<b>Hours</b>	<b>15</b>
<b>Seventh Term</b>	
MATH 4600 Advanced Statistical Methods I	3
Math Elective 3000-4000 Level	3
Related Field or Elective	3
Related Field or Elective	3
Related Field or Elective	3
<b>Hours</b>	<b>15</b>
<b>Eighth Term</b>	
MATH 4350 Applied Linear Algebra	3
MATH 4610 Applications Of Statistics II	3
Related Field or Elective	3
Related Field or Elective	3
<b>Hours</b>	<b>12</b>
<b>Total Hours</b>	<b>120</b>

Below is the plan of study for students in the BS to MS program. Consult your advisor for the exact sequencing of courses.

<b>First Term</b>		<b>Hours</b>
NSM 1000 Foundations of Academic Success for Science and Math Majors	2	
MATH 1830 Calculus I For Mathematicians, Scientists or MATH 1850 And Educators or Single Variable Calculus I	4	
ENGL 1110 College Composition I	3	
Natural Sciences Core	4	
Natural Sciences Laboratory	1	
<b>Hours</b>	<b>14</b>	
<b>Second Term</b>		
MATH 1840 Calculus II For Mathematicians, Scientists or MATH 1860 And Educators or Single Variable Calculus II	4	

ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core	4
Social Sciences Core	3
Diversity of US	3
<b>Hours</b>	<b>17</b>
<b>Third Term</b>	
MATH 2850 Elementary Multivariable Calculus	4
MATH 3190 Introduction To Mathematical Analysis or MATH 2190 or Foundations of Mathematics	3
MATH 3610 Statistical Methods I	3
Non-US Diversity	3
NSM Science Elective	3
<b>Hours</b>	<b>16</b>
<b>Fourth Term</b>	
MATH 1890 Elementary Linear Algebra or MATH 2890 or Numerical Methods And Linear Algebra	3
MATH 3620 Statistical Methods II	3
Arts/Humanities Core	3
Social Sciences Core	3
NSM Science Elective	4
<b>Hours</b>	<b>16</b>
<b>Fifth Term</b>	
MATH 4680 Introduction To Theory Of Probability	3
NSM Science Elective	3
Arts and Humanities Core	3
Related Field or Elective	3
Related Field or Elective	3
<b>Hours</b>	<b>15</b>
<b>Sixth Term</b>	
MATH 4690 Introduction To Mathematical Statistics	3
Writing Across the Curriculum(WAC)	3
Related Field or Elective	3
Related Field or Elective	3
Related Field or Elective	3
<b>Hours</b>	<b>15</b>
<b>Seventh Term</b>	
MATH 5600 Advanced Statistical Methods I	3
MATH 4640 Statistical Computing	3
Related Field or Elective	3
Related Field or Elective	3
Related Field or Elective	3
<b>Hours</b>	<b>15</b>
<b>Eighth Term</b>	
MATH 4350 Applied Linear Algebra	3
MATH 5610 Advanced Statistical Methods II	3
MATH 5620 Linear Statistical Models	3
Related Field or Elective	3
<b>Hours</b>	<b>12</b>

**Ninth Term**

Summer Semester	
Graduate Summer Topics Classes	6
<b>Hours</b>	<b>6</b>

**Tenth Term**

MATH 6620	Categorical Data Analysis	3
MATH 6630	Nonparametric Statistics	3
MATH 6650	Statistical Inference	3
<b>Hours</b>		<b>9</b>

**Eleventh Term**

MATH 5630	Theory And Methods Of Sample Surveys	3
MATH 6690	Multivariate Statistics	3
Graduate Math Elective		3
<b>Hours</b>		<b>9</b>
<b>Total Hours</b>		<b>144</b>

## Bachelor of Science in Mathematics: Concentration: Actuarial Science

Below is a sample plan of study. Consult your degree audit for your program requirements.

**First Term**

NSM 1000	Foundations of Academic Success for Science and Math Majors	2	<b>Hours</b>
MATH 1840 or MATH 1860	Calculus II For Mathematicians, Scientists And Educators <sup>1</sup> or Single Variable Calculus II	4	
ENGL 1110	College Composition I	3	
ECON 1150	Principles Of Macroeconomics	3	
<b>Hours</b>		<b>12</b>	

**Second Term**

MATH 2850	Elementary Multivariable Calculus	4
MATH 1890 or MATH 2890	Elementary Linear Algebra or Numerical Methods And Linear Algebra	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
ECON 1200	Principles Of Microeconomics	3
BUAD 1020	Micro-Computer Applications In Business	3
<b>Hours</b>		<b>16</b>

**Third Term**

MATH 4680	Introduction To Theory Of Probability	3
MATH 3190 or MATH 2190	Introduction To Mathematical Analysis or Foundations of Mathematics	3
BUAD 2040	Financial Accounting Information	3
Natural Science Core		4
Natural Science Core Laboratory		1
Arts/Humanities Core		3
<b>Hours</b>		<b>17</b>

**Fourth Term**

MATH 4690	Introduction To Mathematical Statistics	3
MATH 4620	Theory Of Interest (For actuarial FM exam)	3
Arts/Humanities Core		3
Natural Science Core		3
Related Field or Elective		3
<b>Hours</b>		<b>15</b>

**Fifth Term**

MATH 3610	Statistical Methods I	3
MATH 2860	Elementary Differential Equations	3
BUAD 2050	Accounting For Business Decision-Making	3
Social Science Core		3
NSM Science Elective		3
<b>Hours</b>		<b>15</b>

**Sixth Term**

MATH 3620	Statistical Methods II	3
BUAD 3040	Principles Of Financial Management	3
Writing Across the Curriculum (WAC)		3
Diversity of US		3
NSM Science Elective		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

MATH 4760	Actuarial Mathematics I	3
FINA 3600	Risk Management	3
Non-US Diversity		3
Related Field or Elective		3
NSM Science Elective		3
<b>Hours</b>		<b>15</b>

**Eighth Term**

MATH 4770	Actuarial Mathematics II	3
INFS 3150	Principles Of Structured Computer Programming And Problem Solving	3
Related Field or Elective		9
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Actuarial Science students need to start in Calculus II or may take MATH 2850 in the summer.

Below is the plan of study for students in the BS to MS program. Consult your advisor for the exact sequencing of courses.

**First Term**

NSM 1000	Foundations of Academic Success for Science and Math Majors	2	<b>Hours</b>
MATH 1840 or MATH 1860	Calculus II For Mathematicians, Scientists And Educators or Single Variable Calculus II	4	
ENGL 1110	College Composition I	3	
ECON 1150	Principles Of Macroeconomics	3	
<b>Hours</b>		<b>12</b>	



<b>Second Term</b>		
MATH 2850	Elementary Multivariable Calculus	4
MATH 1890	Elementary Linear Algebra	3
or MATH 2890	or Numerical Methods And Linear Algebra	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
ECON 1200	Principles Of Microeconomics	3
BUAD 1020	Micro-Computer Applications In Business	3
<b>Hours</b>		<b>16</b>

<b>Third Term</b>		
MATH 4680	Introduction To Theory Of Probability	3
MATH 3190	Introduction To Mathematical Analysis	3
or MATH 2190	or Foundations of Mathematics	
BUAD 2040	Financial Accounting Information	3
Natural Sciences Core		4
Natural Sciences Laboratory		1
Arts/Humanities Core		3
<b>Hours</b>		<b>17</b>

<b>Fourth Term</b>		
MATH 4690	Introduction To Mathematical Statistics	3
MATH 4620	Theory Of Interest	3
Arts/Humanities Core		3
Natural Science Core		3
Related Field or Elective		3
<b>Hours</b>		<b>15</b>

<b>Fifth Term</b>		
MATH 2860	Elementary Differential Equations	3
MATH 4760	Actuarial Mathematics I	3
BUAD 2050	Accounting For Business Decision-Making	3
Social Science Core		3
NSM Science Elective		3
<b>Hours</b>		<b>15</b>

<b>Sixth Term</b>		
MATH 4770	Actuarial Mathematics II	3
BUAD 3040	Principles Of Financial Management	3
Writing Across the Curriculum (WAC)		3
Diversity of US		3
NSM Science Elective		3
<b>Hours</b>		<b>15</b>

<b>Seventh Term</b>		
MATH 5600	Advanced Statistical Methods I	3
MATH 4640	Statistical Computing	3
FINA 3600	Risk Management	3
Non-US Diversity		3
NSM Science Elective		3
<b>Hours</b>		<b>15</b>

<b>Eighth Term</b>		
MATH 5610	Advanced Statistical Methods II	3
MATH 5620	Linear Statistical Models	3

INFS 3150	Principles Of Structured Computer Programming And Problem Solving	3
Related Field or Elective		3
Related Field or Elective		3
<b>Hours</b>		<b>15</b>

<b>Ninth Term</b>		
Summer Semester		
Graduate Summer Topics Courses		6
<b>Hours</b>		<b>6</b>

<b>Tenth Term</b>		
MATH 6620	Categorical Data Analysis	3
MATH 6630	Nonparametric Statistics	3
MATH 6650	Statistical Inference	3
<b>Hours</b>		<b>9</b>

<b>Eleventh Term</b>		
MATH 5630	Theory And Methods Of Sample Surveys	3
MATH 6690	Multivariate Statistics	3
Graduate Math Elective		3
<b>Hours</b>		<b>9</b>
<b>Total Hours</b>		<b>144</b>

## Bachelor of Science in Mathematics: Concentration: Data Science

Below is a sample plan of study. Consult your degree audit for your program requirements.

<b>First Term</b>		<b>Hours</b>
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
MATH 1830	Calculus I For Mathematicians, Scientists	4
or MATH 1850	And Educators or Single Variable Calculus I	
ENGL 1110	College Composition I	3
PHIL 1010	Introduction To Logic	3
Natural Sciences Core		4
Natural Science Core Laboratory		1
<b>Hours</b>		<b>17</b>

<b>Second Term</b>		<b>Hours</b>
MATH 1840	Calculus II For Mathematicians, Scientists	4
or MATH 1860	And Educators or Single Variable Calculus II	
MATH 1980	Topics In Mathematics (Intro to Data Science)	1
EECS 1510	Introduction To Object Oriented Programming	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Diversity of US		3
<b>Hours</b>		<b>14</b>

**Third Term**

MATH 1890	Elementary Linear Algebra	3
MATH 2850	Elementary Multivariable Calculus	4
MATH 3610	Statistical Methods I	3
EECS 2500	Linear Data Structures	3
Non-US Diversity		3

**Hours** **16**

**Fourth Term**

MATH 2190	Foundations of Mathematics	3
MATH 2860	Elementary Differential Equations	3
MATH 3620	Statistical Methods II	3
EECS 2510	Non-Linear Data Structures	3
EECS 2520	Discrete Structures	3

**Hours** **15**

**Fifth Term**

MATH 4680	Introduction To Theory Of Probability	3
MATH 4640	Statistical Computing	3
EECS 4560	Database Systems I	3
NSM Science Elective		4
Arts/Humanities Core		3

**Hours** **16**

**Sixth Term**

MATH 4350	Applied Linear Algebra	3
MATH 4690	Introduction To Mathematical Statistics	3
Social Science Core		3
NSM Science Elective		4
Arts/Humanities Core		3

**Hours** **16**

**Seventh Term**

MATH 4600	Advanced Statistical Methods I	3
EECS 4750	Machine Learning	3
EECS 4590	Algorithms	3
EECS 4740	Artificial Intelligence	3
Social Science Core		3

**Hours** **15**

**Eighth Term**

MATH 4610	Applications Of Statistics II	3
EECS Elective		3
MATH 4940	Internship in the Mathematical Sciences	3
Elective		3
Elective (WAC)		3

**Hours** **15**

**Total Hours** **124**

<sup>1</sup> Recommended 3000/4000 elective

- PLO 1. Students will produce and judge the validity of rigorous mathematical arguments.
- PLO 2. Students will explain and illustrate mathematical ideas and arguments.

- PLO 3. Students will read and construct mathematical proofs.
- PLO 4. Students will construct proofs and/or derivations of mathematical statements.

## Minor in Mathematics

To obtain a minor in mathematics, a minimum of 22 hours in mathematics must be completed. The 22 hours must include:

Code	Title	Hours
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4
	or MATH 1860 Single Variable Calculus II	
MATH 1890	Elementary Linear Algebra	3
	or MATH 2890 Numerical Methods And Linear Algebra	
MATH 2850	Elementary Multivariable Calculus	4
Select one of the following:		3
MATH 3610	Statistical Methods I	
MATH 2860	Elementary Differential Equations	
MATH 4680	Introduction To Theory Of Probability	
Select remaining hours in courses that are acceptable toward a major in mathematics and must be approved by an advisor in the Department of Mathematics and Statistics.		8
<b>Total Hours</b>		<b>22</b>

## Department of Physics and Astronomy

Nikolas Podraza, Chair  
 Rupali Chandar, Associate Chair  
 Song Cheng, Graduate Program Director  
 Sanjay V. Khare, Coordinator, Minor in Renewable Energy

**Advisors:**

- BA - Astronomy: Michael Cushing: Michael.Cushing@utoledo.edu ()
- BA - Physics: Xunming Deng: Xunming.Deng@utoledo.edu ()
- BS - Physics, concentration Astrophysics: Michael Cushing: Michael.Cushing@utoledo.edu ()
- BS - Physics, concentration Applied Physics: Xunming Deng: Xunming.Deng@utoledo.edu ()
- BS - Physics, concentration Medical Physics: Aniruddha Ray: Aniruddha.Ray@utoledo.edu ()
- BS - Physics, concentration Physics: Xunming Deng: Xunming.Deng@utoledo.edu ()

## Degrees Offered

The Department of Physics and Astronomy offers courses of study leading to the Bachelor of Science degree in physics, the Bachelor of Arts in physics and the Bachelor of Arts in astronomy.

## Advanced Placement

- Students with a score of 3, 4 or 5 on the Physics B test will receive credit for PHYS 2070 and PHYS 2080.



- Students with a score of 3, 4 or 5 on the Physics C Mechanics test will receive credit for PHYS 2130;
- Students with a score of 3, 4 or 5 on the Physics C Electricity and Magnetism test will receive credit for PHYS 2140.

## Degrees Offered

- BA in Astronomy (p. 442)
- BS in Physics (p. 444)
- Minor in Astrophysics (p. 450)
- Minor in Physics (p. 450)
- Minor in Renewable Energy (p. 451)

### ASTR 1010 Survey Of Astronomy

[3 credit hours]

Not for major credit; not open to science majors; no credit after 2010, 2020. General astronomy, including appearance of the sky and nature and evolution of the Earth, Moon, solar system, stars, galaxies and the Universe.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

### ASTR 2010 Solar System Astronomy

[3 credit hours]

A quantitative introduction to the contents, origin and evolution of the solar system, as revealed by recent advances in space exploration. High school mathematics at the level of graphs, algebra and elementary logarithms is required.

**Prerequisites:** ACT Math with a score of 22 or MATH SECTION SCORE with a score of 550 or Aleks Math Placement Test with a score of 61 or Aleks Math Placement Retest with a score of 61 or Math - Coll Algebra Placement with a score of 12 or MATH 1320 with a minimum grade of C- or MATH 1330 with a minimum grade of C- or MATH 1340 with a minimum grade of C-

**Term Offered:** Fall

Core Natural Sciences, OT36 Natural Science

### ASTR 2020 Stars, Galaxies, And The Universe

[3 credit hours]

A quantitative introduction to the nature and evolution of stars, galaxies and the universe, as revealed by observation and physical theory. High school mathematics at the level of graphs, algebra and elementary logarithms is required.

**Prerequisites:** ACT Math with a score of 22 or MATH SECTION SCORE with a score of 550 or Aleks Math Placement Test with a score of 61 or Aleks Math Placement Retest with a score of 61 or Math - Coll Algebra Placement with a score of 12 or MATH 1320 with a minimum grade of C- or MATH 1330 with a minimum grade of C- or MATH 1340 with a minimum grade of C-

**Term Offered:** Spring

Core Natural Sciences, OT36 Natural Science

### ASTR 2050 Elementary Astronomy Laboratory

[1 credit hour]

Laboratory exercises and observational measurements in elementary astronomy. Two hours laboratory per week. (not for major credit)

**Term Offered:** Spring, Fall

Core Natural Sciences, OT36 Natural Science

### ASTR 2320 Life In The Universe

[3 credit hours]

The astronomical factors involved in the emergence of life in the universe, the search for extraterrestrial intelligence and the likelihood of advanced civilizations in the Galaxy. May be offered as writing intensive.

**Prerequisites:** ASTR 1010 with a minimum grade of D- or (ASTR 2010 with a minimum grade of D- and ASTR 2020 with a minimum grade of D-)

**Term Offered:** Spring, Fall

### ASTR 2340 New Frontiers In Astronomy

[3 credit hours]

Descriptive treatment of recent developments in astronomy from spacecraft, such as the Hubble Space Telescope, or from the newest, very large ground based telescopes. May be offered as a writing intensive.

**Prerequisites:** ASTR 1010 with a minimum grade of D- or ASTR 2010 with a minimum grade of D- or ASTR 2020 with a minimum grade of D-

**Term Offered:** Spring

### ASTR 3880 Foundations of Astronomy

[4 credit hours]

Positional Astronomy and Time; Telescopes and Optics; Detection and Characterization of Light (Imaging, Photometry and Spectroscopy); Data Reduction and Measurements; Fundamental Techniques of Astronomy (Parallax, Magnitudes, Interstellar Extinction, Doppler Shift and Spectral Line Widths, Stellar Classification, Color-Magnitude and Color-Color Diagrams, Lightcurves, and Redshifts); Measuring Properties of Stars, Star Clusters, Galaxies, and the Universe.

**Prerequisites:** ASTR 2020 with a minimum grade of D- and PHYS 3310 with a minimum grade of D- and CSET 1100 with a minimum grade of D-

**Term Offered:** Spring

### ASTR 4810 Astrophysics I

[3 credit hours]

Spherical coordinate systems, astronomical time, celestial mechanics, the solar system and planetary physics, photometry, radiative transfer, stellar spectra and classification, binary stars and stellar masses.

**Prerequisites:** ASTR 3880 with a minimum grade of D-

**Term Offered:** Fall

### ASTR 4820 Astrophysics II

[3 credit hours]

Stellar structure and evolution, close binaries, origin of the elements, the sun, variable stars, star clusters, the interstellar medium, the Milky Way Galaxy, stellar statistics, galaxy structure and evolution, cosmology.

**Prerequisites:** ASTR 4810 with a minimum grade of D-

**Term Offered:** Spring

### ASTR 4880 Astrophysical Measurements

[3 credit hours]

Astronomical, optical and electronic principles of operation of a modern astronomical observatory. Observing with the 1 meter telescope of Ritter Observatory, introduction to reduction, analysis and interpretation of astrophysical data. Six hours laboratory per week. May be offered as writing intensive.

**Prerequisites:** ASTR 3880 with a minimum grade of D-

**Term Offered:** Fall

**PHYS 1100 Our Physical World - Matter & Energy**

[3 credit hours]

Elementary study of motion and gravity, thermodynamics, wave phenomena, light, electricity, magnetism, models of the atom, the solar system, stars and galaxies.

**Term Offered:** Fall

Core Natural Sciences

**PHYS 1110 Physical World Laboratory**

[1 credit hour]

Quantitative measurements and predictions concerning the physical universe in a laboratory environment. Motion, electric and magnetic fields, properties of matter, temperature and heat, radioactive decay. Two hours of laboratory per week.

**Corequisites:** PHYS 1100**Term Offered:** Fall

Core Natural Sciences

**PHYS 1300 Physics In Everyday Life**

[3 credit hours]

Not for major credit. Selected subjects of current interest, with their relation to the principles and concepts of physics. Content may vary from year to year. No special science or mathematics background needed.

**Term Offered:** Fall

Core Natural Sciences

**PHYS 1320 Jurassic Physics**

[3 credit hours]

Not for major credit. Mechanics, energy, sound and thermodynamics of dinosaurs. The physics of vision and hearing. Fluids and flight. Radioactivity. Climate and the effects of an asteroid collision with the Earth.

**Term Offered:** Spring

Core Natural Sciences

**PHYS 1750 Introduction To Physics**

[4 credit hours]

Not for major credit. High school mathematics including plane geometry, trigonometry and two years of algebra is strongly recommended. Fundamental laws of nature pertaining to mechanics, thermodynamics, waves, electricity, magnetism, optics, atoms and particles.

**Term Offered:** Fall

Core Natural Sciences, OT36 Natural Science

**PHYS 1910 Frontiers Of Physics And Astronomy**

[3 credit hours]

An examination of our current understanding of the physical world at the conceptual level. Topics may include the ultimate structure of matter, quantum theory, relativity, astrophysics, cosmology and contemporary applications.

**Term Offered:** Fall**PHYS 2070 General Physics I**

[4 credit hours]

Algebra based general physics. Calculus not required. Mechanics of energy and motion, gravitation, harmonic motion, fluids, heat, entropy and the laws of thermodynamics. Four hours of lecture.

**Prerequisites:** (MATH 1320 with a minimum grade of D- and MATH 1330 with a minimum grade of D-) or MATH 1340 with a minimum grade of D- or MATH 1750 with a minimum grade of D- or MATH 1850 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**PHYS 2075 General Physics I - Lab**

[1 credit hour]

Laboratory component for PHYS 2070. Algebra-based general physics labs associated with mechanics of energy and motion, gravitation, harmonic motion, fluids, heat, entropy and the laws of thermodynamics. Two hours of lab.

**Prerequisites:** (MATH 1320 with a minimum grade of D- and MATH 1330 with a minimum grade of D-) or MATH 1340 with a minimum grade of D- or MATH 1750 with a minimum grade of D- or MATH 1850 with a minimum grade of D-

**Corequisites:** PHYS 2070**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

**PHYS 2080 General Physics II**

[4 credit hours]

Algebra based general physics. Calculus not required. Electricity and magnetism, capacitors and inductors, electromagnetic waves, optics, atomic physics, nuclear physics, and elementary particles. Four hours of lecture.

**Prerequisites:** PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**PHYS 2085 General Physics II - Lab**

[1 credit hour]

Laboratory component for PHYS 2080. Algebra-based general physics labs associated with electricity and magnetism, capacitors and inductors, electromagnetic waves, optics, and atomic physics. Two hours of lab.

**Prerequisites:** PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of C

**Corequisites:** PHYS 2080**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

**PHYS 2100 Physics With Calculus**

[2 credit hours]

A bridge course for students wishing to continue in physics after taking PHYS 2070-2080. The application of calculus and elementary differential equations in various physical contexts. No credit for students who take PHYS 2130-2140.

**Prerequisites:** (PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and MATH 1860 with a minimum grade of D-) or (PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and MATH 1840 with a minimum grade of D-) or (PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and MATH 1880 with a minimum grade of D-) or (PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and MATH 1930 with a minimum grade of D-)

**Term Offered:** Spring, Fall**PHYS 2130 Physics For Science And Engineering Majors I**

[4 credit hours]

Calculus based general physics. Mechanics of motion and energy, rotation, gravitation, harmonic motion, waves, fluids and the laws of thermodynamics. Four hours of lecture.

**Prerequisites:** MATH 1830 (may be taken concurrently) with a minimum grade of C or MATH 1850 (may be taken concurrently) with a minimum grade of C or MATH 1920 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**PHYS 2135 Physics for Science and Engineering Majors I - Lab**

[1 credit hour]

Laboratory component of PHYS 2130. Calculus based general physics labs associated with mechanics of motion and energy, rotation, gravitation, harmonic motion, waves, fluids and the laws of thermodynamics. Two hours of lab.

**Prerequisites:** MATH 1830 (may be taken concurrently) with a minimum grade of C or MATH 1850 (may be taken concurrently) with a minimum grade of C or MATH 1920 (may be taken concurrently) with a minimum grade of C

**Corequisites:** PHYS 2130**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

**PHYS 2140 Physics For Science And Engineering Majors II**

[4 credit hours]

Calculus based general physics. Electricity and magnetism, capacitors and inductors, electromagnetic oscillations, Maxwell's equations and electromagnetic radiation, optics, images, interference, and diffraction. Four hours of lecture.

**Prerequisites:** PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**PHYS 2145 Physics for Science and Engineering Majors II - Lab**

[1 credit hour]

Laboratory component for PHYS 2140. Calculus based general physics labs associated with electricity and magnetism, capacitors and inductors, electromagnetic oscillations, Maxwell's equations and electromagnetic radiation, optics, images, interference, and diffraction. Two hours of lab.

**Prerequisites:** PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of C

**Corequisites:** PHYS 2140**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

**PHYS 3180 Intermediate Laboratory**

[3 credit hours]

Physical measurements laboratory related to the development of modern physics, emphasizing techniques such as electronics, computer-aided experimental control and data acquisition, and data analysis. May be offered as writing intensive.

**Prerequisites:** PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- or PHYS 2100 with a minimum grade of D-

**Term Offered:** Spring**PHYS 3310 Modern Physics I**

[3 credit hours]

Quantum mechanics: atomic and molecular structure and spectra.

**Prerequisites:** (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 1840 with a minimum grade of D-) or (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 1860 with a minimum grade of D-) or (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 1880 with a minimum grade of D-) or (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 1930 with a minimum grade of D-)

**Term Offered:** Fall**PHYS 3400 Physical Principles Of Energy Sources For Humans**

[3 credit hours]

This course will involve the study of various conventional and unconventional sources of energy for human consumption. Past, present, and future energy sources will be examined on scientifically established principles and data.

**Prerequisites:** PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- or PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and CHEM 1240 with a minimum grade of D-

**Term Offered:** Spring**PHYS 3410 Thermal Physics**

[3 credit hours]

Statistical mechanics, kinetic theory and thermodynamics from a unified microscopic point of view, with applications to a variety of topics from different areas of physics.

**Prerequisites:** PHYS 3310 with a minimum grade of D-

**Term Offered:** Spring



**PHYS 3610 Optics And Lasers**

[3 credit hours]

Electromagnetic theory, ray and wave optics including matrix methods, polarization, interference, diffraction, basic laser physics and survey of current laser systems.

**Prerequisites:** PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-

**Term Offered:** Spring, Fall

**PHYS 4130 Computational Physics**

[3 credit hours]

Working knowledge of computer operations and programming required. Numerical accuracy, advanced programming, graphics and spreadsheet packages, numerical techniques for differentiation, integration, matrices, solving differential equations and eigenvalue problems.

**Prerequisites:** (MATH 1830 with a minimum grade of D- or MATH 1850 with a minimum grade of D-) and (MATH 1840 with a minimum grade of D- or MATH 1860 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**PHYS 4210 Theoretical Mechanics**

[3 credit hours]

Statics and dynamics of particles, work, energy, Lagrange equations of motion, small oscillations, dynamics of rigid bodies.

**Prerequisites:** (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 1890 with a minimum grade of D- and MATH 2860 with a minimum grade of D-) or (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 2890 with a minimum grade of D- and MATH 2860 with a minimum grade of D-)

**Term Offered:** Fall

**PHYS 4230 Electricity And Magnetism I**

[3 credit hours]

Mathematical formulation of electrostatic and magnetostatic fields, potential theory solution of boundary value problems, method of images, dielectric and magnetic materials.

**Prerequisites:** (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 1890 with a minimum grade of D- and MATH 2860 with a minimum grade of D-) or (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 2890 with a minimum grade of D- and MATH 2860 with a minimum grade of D-)

**Term Offered:** Fall

**PHYS 4240 Electricity And Magnetism II**

[3 credit hours]

Maxwell's field equations, production and propagation of electromagnetic waves, solution of boundary value problems with application to the laws of optics and guided waves.

**Prerequisites:** PHYS 4230 with a minimum grade of D-

**Term Offered:** Spring

**PHYS 4310 Quantum Mechanics**

[3 credit hours]

Formalism and applications of quantum mechanics: Hilbert space, time-independent and time-dependent perturbation theories, atomic and molecular structure and spectra, and scattering theory.

**Prerequisites:** (PHYS 3310 with a minimum grade of D- and MATH 2860 with a minimum grade of D- and MATH 1890 with a minimum grade of D-) or (PHYS 3320 with a minimum grade of D- and MATH 2890 with a minimum grade of D-)

**Term Offered:** Spring

**PHYS 4400 Principles and Varieties of Solar Energy**

[3 credit hours]

Types and extent of solar energy used in human society including photosynthesis, photovoltaic, solar thermal, and concentrating solar electric; scope of the necessary energy storage and long distance electricity transmission.

**Prerequisites:** CHEM 1240 with a minimum grade of D- and PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and PHYS 3400 with a minimum grade of D-

**Term Offered:** Spring

**PHYS 4430 Medical Physics I**

[3 credit hours]

This course provides an overview of the physical principles and instrumentation of the major medical imaging modalities including projection radiography, and computed tomography. In addition the course will present a general perspective on use of radiation in cancer treatment including discussions on basic conventional radiotherapy, advanced image guided radiotherapy and treatment planning. This is a companion course to PHYS 4440.

**Prerequisites:** (PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- or PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-) and (MATH 1760 with a minimum grade of D- or MATH 1840 with a minimum grade of D- or MATH 1860 with a minimum grade of D-)

**Term Offered:** Fall

**PHYS 4440 Medical Physics II**

[3 credit hours]

This is the second part of a two-semester Medical Physics course. The course provides an overview of the physical principles and instrumentation of the major medical imaging modalities including projection radiography, and computed tomography. In addition the course will present a general perspective on use of radiation in cancer treatment including discussions on basic conventional radiotherapy, advanced image guided radiotherapy and treatment planning. Prerequisite: PHYS 4430.

**Prerequisites:** PHYS 4430 with a minimum grade of D-

**Term Offered:** Spring

**PHYS 4510 Physics Of Condensed Matter**

[3 credit hours]

Crystal lattices and structures, reciprocal lattice and kinematical diffraction theory, binding in crystals, lattice dynamics and phonons, thermodynamic, electronic, and optical properties of insulators, semiconductors, metals and alloys.

**Prerequisites:** (PHYS 3310 with a minimum grade of D- and PHYS 3410 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**PHYS 4580 Molecular And Condensed Matter Laboratory**

[3 credit hours]

Experiments in molecular and condensed matter physics. Measurements and analysis based on techniques such as film thickness and surface morphology, X-ray diffraction, optical absorption, four-point probe and Hall measurements. One four-hour lab and one-hour lecture per week. May be offered as writing intensive.

**Prerequisites:** PHYS 3310 with a minimum grade of D-**Term Offered:** Fall**PHYS 4630 Semiconductors 1**

[3 credit hours]

Review of modern theory of solids. Semiconducting and metallic materials. Semiconductor devices including p-n junctions and solar cells.

**Prerequisites:** PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-**Term Offered:** Spring**PHYS 4780 Atomic And Nuclear Physics Laboratory**

[3 credit hours]

Detectors and electronics, gamma-ray and X-ray spectroscopies, beta and alpha particle spectroscopies, nuclear magnetic resonance, grating and interferometric spectroscopy, laser applications, and solar atomic spectroscopy. One four-hour lab and one-hour lecture per week. May be offered as writing intensive.

**Prerequisites:** PHYS 3310 with a minimum grade of D-**Term Offered:** Spring**PHYS 4910 Research Problems-Physics And Astronomy**

[1-3 credit hours]

Individual experimental or theoretical projects selected with the approval of the department.

**Term Offered:** Spring, Summer, Fall**PHYS 4920 Senior Capstone Project**

[1 credit hour]

Required senior capstone project for all physics and astronomy majors. The topics may involve physics/astronomy research, physics/astronomy education, research in a related field with an emphasis on physics/astronomy, internships with companies or other institutions with an emphasis on physics/astronomy. Students should register for this course in the closest spring semester prior to graduation.

**Prerequisites:** PHYS 4950 with a minimum grade of D-**PHYS 4940 Internship in Renewable Energy**

[1-4 credit hours]

Experiential learning in an advisor-approved business, non-profit, or academic organization. Maximum of three hours may count toward minor. Credit hours 1-4; may be repeated once for credit

**Prerequisites:** PHYS 3400 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PHYS 4950 Undergraduate Professional Development Seminar**

[1 credit hour]

Selected topics on professional development as it applies to junior / senior level physics or astronomy major undergraduates. Specific emphasis will be on topics relevant to near-term professional goals of students (graduate school applications, job interviews, career pathways, CV/resume, professional presentation skills, and ethical research).

**PHYS 4980 Special Topics In Physics**

[1-4 credit hours]

Individual or small group study of selected topics not covered in regular undergraduate courses.

**Term Offered:** Spring, Summer, Fall

## Honors in Physics and Astronomy

Qualified juniors and seniors may be invited to work for the citation "honors in physics and astronomy."

1. Admission: The Honors Program in the department of physics and astronomy is open to physics majors and may be taken concurrently with College Honors. Admission to the program is based upon the student's academic achievement (at least a 3.0 GPA overall; at least a 3.3 GPA in the major), recommendations of previous instructors and an interview with the departmental honors officer. A petition for entrance into the program normally should be made before the end of the sophomore year.
2. Requirements: In order to remain in the program and graduate with departmental honors, the students must maintain at least a 3.0 cumulative GPA and at least a 3.3 GPA in the major. In addition to the normal requirements for a physics undergraduate major, the student must successfully complete six hours of physics with honors in courses numbered above 3320<sup>1</sup>, six hours of math chosen from MATH 2860 and other math courses above the 3000 level. A written Honors Thesis and an oral presentation of the thesis work are required.

<sup>1</sup> ASTR 4810, ASTR 4820 may count toward this requirement.

## BA in Astronomy

The B.A. in Astronomy requires a minimum of 120 hours of coursework and provides a strong background in basic astronomy and physics while also allowing flexibility for students to customize their undergraduate education.

The B.A. degree in astronomy a minimum of 40 hours of required astronomy and physics courses in the Department of Physics and Astronomy, 15 hours of mathematics, and at least 9 additional hours in the natural sciences and mathematics, chosen with the Advisor's approval are required.

Recommended Introductory Course: PHYS 1910 Frontiers Of Physics and Astronomy (strongly recommended)

The following courses are required:

ASTR 2010 Solar System Astronomy

ASTR 2020 Stars, Galaxies, And The Universe

ASTR 3880 Foundations of Astronomy

ASTR 4810 Astrophysics I

ASTR 4820 Astrophysics II

ASTR 4880 Astrophysical Measurements

Basic Physics Sequence: either (PHYS 2130 and PHYS 2135 &

PHYS 2140 and PHYS 2145) or (PHYS 2070 and PHYS 2075 &

PHYS 2080 and PHYS 2085 & PHYS 2100)

PHYS 3310 Modern Physics I

PHYS 4920 Senior Capstone Project

PHYS 4950 Undergraduate Professional Development Seminar  
 Select 6 additional hours of advanced physics courses numbered 3000 or higher

The following related courses in Mathematics are also required:  
 Calculus I and II: either (MATH 1830 & MATH 1840) or (MATH 1850 & MATH 1860)

MATH 2850 Elementary Multivariable Calculus  
 MATH 3610 Statistical Methods I

Other courses in related science areas: At least 9 additional hours hours of approved electives, of which at least two courses must be major-level chosen from at least two of the departments: in biology, chemistry, or environmental sciences, approved by the student’s academic advisor.

This program is intended to provide the combination of fundamental physics, together with general and advanced astronomy, required for a career in astronomy or a related area. It also has the flexibility required by students who wish to pursue interdisciplinary studies or prepare for careers in teaching or other professions requiring a fundamental understanding of the physical sciences.

Below is a sample plan of study. Consult your degree audit for your program requirements

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
PHYS 1910	Frontiers Of Physics And Astronomy (Or electives to reach 120 hours)	3
ASTR 2010	Solar System Astronomy	3
Elective		3
Select one of the following:		4
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	
MATH 1850	Single Variable Calculus I	
<b>Hours</b>		<b>15</b>
Second Term		Hours
ASTR 2020	Stars, Galaxies, And The Universe	3
PHYS 2130	Physics For Science And Engineering Majors I <sup>1</sup>	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
Select one of the following:		4
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	
MATH 1860	Single Variable Calculus II	
Elective		3
<b>Hours</b>		<b>15</b>
Third Term		Hours
ENGL 1110	College Composition I	3
MATH 2850	Elementary Multivariable Calculus	4
MATH 3610	Statistical Methods I	3
PHYS 2140	Physics For Science And Engineering Majors II <sup>1</sup>	4

PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
<b>Hours</b>		<b>15</b>
Fourth Term		Hours
Select one of the following:		3-4
BIOL 2150 to BIOL 4xxx		
CHEM 1230 to CHEM 4xxx		
EEES 2010 to EEES 4xxx		
Select one of the following:		3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	
ENGL 2950	Technical Writing	
ENGL 2960	Professional and Business Writing	
Arts and Humanities Core		3
Social Sciences Core		3
Elective		3
<b>Hours</b>		<b>15-16</b>
Fifth Term		Hours
PHYS 3310	Modern Physics I (WAC)	3
3000-4000 level Phys		3
Social Sciences Core		3
Elective		3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
Sixth Term		Hours
ASTR 3880	Foundations of Astronomy	4
3000-4000 level PHYS		3
Select one of the following:		3-4
BIOL 2150 to BIOL 4xxx		
CHEM 1230 to CHEM 4xxx		
EEES 2010 to EEES 4xxx		
Social Sciences Core		3
Elective		3
<b>Hours</b>		<b>16-17</b>
Seventh Term		Hours
PHYS 4950	Undergraduate Professional Development Seminar	1
ASTR 4810	Astrophysics I	3
ASTR 4880	Astrophysical Measurements	3
Elective		5
Diversity of US		3
<b>Hours</b>		<b>15</b>
Eighth Term		Hours
PHYS 4920	Senior Capstone Project	1
ASTR 4820	Astrophysics II	3
Electives		7
Non-US Diversity		3
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>120-122</b>



<sup>1</sup> PHYS 2070, PHYS 2075, PHYS 2080, PHYS 2085 & PHYS 2100 may be substituted for PHYS 2130, PHYS 2135, PHYS 2140 and PHYS 2145 with advisors permission.

- PLO 1. Our students must be able to analyze and solve (using the appropriate mathematical techniques) any undergraduate problem from the core areas of physics and astronomy (Newtonian mechanics, electromagnetism, quantum theory and astronomy).
- PLO 2. Our students must be able to perform astronomical observations to measure physical properties of interest.
- PLO 3. Our students must also be able to analyze these results in order to interpret the significance, including an estimation of the uncertainties associated with their measurements.
- PLO 4. Our students must be able to discuss and explain scientific information in both written and oral formats.

## BS in Physics

The B.S. in Physics requires a minimum of 120 hours of coursework and provides a strong background in basic physics while preparing students to prepare for jobs in industry or pursue graduate education.

The B.S. degree in physics requires completion of a common core of 34 hours of physics courses and 29 hours of related-area courses and a choice of one concentration with additional requirements as listed below. The concentrations contain an additional 6-20 hours of physics, astronomy and related courses.

### Recommended Introductory Course

PHYS 1910 Frontiers Of Physics And Astronomy (strongly recommended)

### Completion of one of the following concentrations is required:

- Physics -Physics Concentration, BS (p. 444)
- Physics -Applied Physics Concentration, BS
- Physics -Astrophysics Concentration, BS
- Physics -Medical Physics Concentration, BS

### Physics -Physics Concentration, BS

Code	Title	Hours
<b>B.S. Degree in Physics</b>		
The B.S. degree in physics requires completion of a common core of 34 hours of physics courses and 29 hours of related-area courses and a choice of one concentration with additional requirements as listed below. The concentrations contain an additional 6-20 hours of physics, astronomy and related courses.		
<b>Recommended Introductory Course</b>		
PHYS 1910	Frontiers Of Physics And Astronomy (Strongly recommended)	3
<b>Required Core Physics Courses</b>		
PHYS 2130	Physics For Science And Engineering Majors I <sup>Or</sup> with approval, PHYS 2070, PHYS 2075 plus PHYS 2100	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
PHYS 2140	Physics For Science And Engineering Majors II <sup>Or</sup> with approval, PHYS 2080, PHYS 2085 plus PHYS 2100	4

### Recommended Introductory Course

### Required Core Physics Courses

PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
PHYS 3310	Modern Physics I	3
PHYS 3410	Thermal Physics	3
PHYS 4210	Theoretical Mechanics	3
PHYS 4230	Electricity And Magnetism I	3
PHYS 4240	Electricity And Magnetism II	3
PHYS 4310	Quantum Mechanics	3
PHYS 4910	Research Problems-Physics And Astronomy <sup>1-3 hrs</sup> in each of two semester	4
PHYS 4920	Senior Capstone Project	1
PHYS 4950	Undergraduate Professional Development Seminar	1

### The following related courses are also required:

CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
One of the following		3

CSET 1100	Introduction to Computer Science and Engineering Technology	
EECS 1500	Introduction to Programming	
PHYS 4130	Computational Physics	
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4
or MATH 1850 Single Variable Calculus I		
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4
or MATH 1860 Single Variable Calculus II		
MATH 1890	Elementary Linear Algebra	3
or MATH 2890 Numerical Methods And Linear Algebra		
MATH 2850	Elementary Multivariable Calculus	4
MATH 2860	Elementary Differential Equations	3
MATH 3610	Statistical Methods I	3
One additional course chosen from major-level courses in biology, chemistry, or environmental sciences (3-4 hrs)		3

### Required Courses for Physics Concentration

PHYS 3180	Intermediate Laboratory	3
PHYS 4580	Molecular And Condensed Matter Laboratory	3
or PHYS 4780 Atomic And Nuclear Physics Laboratory		

### In addition to the above requirements, students should consider the following recommended elective courses:

MATH 4740		3
MATH 4750		3

### Physics -Astrophysics Concentration, BS

Code	Title	Hours
<b>B.S. Degree in Physics</b>		
The B.S. degree in physics requires completion of a common core of 34 hours of physics courses and 29 hours of related-area courses and a choice of one concentration with additional requirements as listed below. The concentrations contain an additional 6-20 hours of physics, astronomy and related courses.		
<b>Recommended Introductory Course</b>		

### Recommended Introductory Course

PHYS 1910	Frontiers Of Physics And Astronomy (Strongly recommended)	3
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**Required Core Physics Courses**

PHYS 2130	Physics For Science And Engineering Majors I <sup>Or</sup> with approval, PHYS 2070, PHYS 2075 plus PHYS 2100	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
PHYS 2140	Physics For Science And Engineering Majors II <sup>Or</sup> with approval, PHYS 2080, PHYS 2085 plus PHYS 2100	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
PHYS 3310	Modern Physics I	3
PHYS 3410	Thermal Physics	3
PHYS 4210	Theoretical Mechanics	3
PHYS 4230	Electricity And Magnetism I	3
PHYS 4240	Electricity And Magnetism II	3
PHYS 4310	Quantum Mechanics	3
PHYS 4910	Research Problems-Physics And Astronomy <sup>1-3 hrs</sup> in each of two semesters	4
PHYS 4920	Senior Capstone Project	1
PHYS 4950	Undergraduate Professional Development Seminar	1

The following related courses are also required:

CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1

One of the following 3

CSET 1100	Introduction to Computer Science and Engineering Technology	
EECS 1500	Introduction to Programming	
PHYS 4130	Computational Physics	

MATH 1830 Calculus I For Mathematicians, Scientists And Educators 4

or MATH 1850 Single Variable Calculus I

MATH 1840 Calculus II For Mathematicians, Scientists And Educators 4

or MATH 1860 Single Variable Calculus II

MATH 1890 Elementary Linear Algebra 3

or MATH 2890 Numerical Methods And Linear Algebra

MATH 2850 Elementary Multivariable Calculus 4

MATH 2860 Elementary Differential Equations 3

MATH 3610 Statistical Methods I 3

One additional course chosen from major-level courses in biology, chemistry, or environmental sciences (3-4 hrs) 3

**Required Courses for the Astrophysics Concentration**

ASTR 2010	Solar System Astronomy	3
ASTR 2020	Stars, Galaxies, And The Universe	3
ASTR 3880	Foundations of Astronomy	4
ASTR 4810	Astrophysics I	3
ASTR 4820	Astrophysics II	3
ASTR 4880	Astrophysical Measurements	3

In addition to the above requirements, students should select CSET 1100 as the programming course, and consider the following two recommended elective math courses:

MATH 4740	3
MATH 4750	3

**Physics -Applied Physics Concentration, BS**

**Code Title Hours**

**B.S. Degree in Physics**

The B.S. degree in physics requires completion of a common core of 34 hours of physics courses and 29 hours of related-area courses and a choice of one concentration with additional requirements as listed below. The concentrations contain an additional 6-20 hours of physics, astronomy and related courses.

**Recommended Introductory Course**

PHYS 1910	Frontiers Of Physics And Astronomy (Strongly recommended)	3
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**Required Core Physics Courses**

PHYS 2130	Physics For Science And Engineering Majors I <sup>Or</sup> with approval, PHYS 2070, PHYS 2075 plus PHYS 2100	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
PHYS 2140	Physics For Science And Engineering Majors II <sup>Or</sup> with approval, PHYS 2080, PHYS 2085 plus PHYS 2100	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
PHYS 3310	Modern Physics I	3
PHYS 3410	Thermal Physics	3
PHYS 4210	Theoretical Mechanics	3
PHYS 4230	Electricity And Magnetism I	3
PHYS 4240	Electricity And Magnetism II	3
PHYS 4310	Quantum Mechanics	3
PHYS 4910	Research Problems-Physics And Astronomy <sup>1-3 hrs</sup> in each of two semesters	4
PHYS 4920	Senior Capstone Project	1
PHYS 4950	Undergraduate Professional Development Seminar	1

The following related courses are also required:

CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1

One of the following 3

CSET 1100	Introduction to Computer Science and Engineering Technology	
EECS 1500	Introduction to Programming	
PHYS 4130	Computational Physics	

MATH 1830 Calculus I For Mathematicians, Scientists And Educators 4

or MATH 1850 Single Variable Calculus I

MATH 1840 Calculus II For Mathematicians, Scientists And Educators 4

or MATH 1860 Single Variable Calculus II

MATH 1890 Elementary Linear Algebra 3

or MATH 2890 Numerical Methods And Linear Algebra

MATH 2850 Elementary Multivariable Calculus 4

MATH 2860 Elementary Differential Equations 3

MATH 3610 Statistical Methods I 3



One additional course chosen from major-level courses in biology, chemistry, or environmental sciences (3-4 Hrs) 3

**Required Courses for Applied Physics Concentration**

PHYS 3180	Intermediate Laboratory	3
PHYS 3610	Optics And Lasers	3
PHYS 4510	Physics Of Condensed Matter	3
PHYS 4580	Molecular And Condensed Matter Laboratory	3
or PHYS 4780	Atomic And Nuclear Physics Laboratory	

Additional courses from physics or engineering, chosen with the advisor's approval 3

**In addition to the above requirements, students should consider the following recommended elective courses:**

MATH 4740		3
MATH 4750		3

**Physics -Medical Physics Concentration, BS**

**Code Title Hours**

**B.S. Degree in Physics**

The B.S. degree in physics requires completion of a common core of 34 hours of physics courses and 29 hours of related-area courses and a choice of one concentration with additional requirements as listed below. The concentrations contain an additional 6-20 hours of physics, astronomy and related courses.

**Recommended Introductory Course**

PHYS 1910	Frontiers Of Physics And Astronomy (Strongly recommended)	3
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**Required Core Physics Courses**

PHYS 2130	Physics For Science And Engineering Majors I <sup>Or</sup> with approval, PHYS 2070, PHYS 2075 plus PHYS 2100	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
PHYS 2140	Physics For Science And Engineering Majors II <sup>Or</sup> with approval, PHYS 2080, PHYS 2085 plus PHYS 2100	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
PHYS 3310	Modern Physics I	3
PHYS 3410	Thermal Physics	3
PHYS 4210	Theoretical Mechanics	3
PHYS 4230	Electricity And Magnetism I	3
PHYS 4240	Electricity And Magnetism II	3
PHYS 4310	Quantum Mechanics	3
PHYS 4910	Research Problems-Physics And Astronomy <sup>1-3 hrs</sup> in each of two semesters	4
PHYS 4920	Senior Capstone Project	1
PHYS 4950	Undergraduate Professional Development Seminar	1

**The following related courses are also required:**

CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
EECS 1500	Introduction to Programming	3
or PHYS 4130	Computational Physics	
or CSET 1100	Introduction to Computer Science and Engineering Technology	

MATH 1830 Calculus I For Mathematicians, Scientists And Educators 4

or MATH 1850 Single Variable Calculus I

MATH 1840 Calculus II For Mathematicians, Scientists And Educators 4

or MATH 1860 Single Variable Calculus II

MATH 1890 Elementary Linear Algebra 3

or MATH 2890 Numerical Methods And Linear Algebra

MATH 2850 Elementary Multivariable Calculus 4

MATH 2860 Elementary Differential Equations 3

MATH 3610 Statistical Methods I 3

One additional course chosen from major-level courses in biology, chemistry, or environmental sciences (3-4 hrs) 3

**Required Courses for Medical Physics Concentration**

PHYS 3180 Intermediate Laboratory 3

PHYS 4430 Medical Physics I 3

PHYS 4440 Medical Physics II 3

PHYS 4580 Molecular And Condensed Matter Laboratory 3

or PHYS 4780 Atomic And Nuclear Physics Laboratory

BIOL 2150 Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation 4

BIOL 2160 Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation 1

EXSC 2510 Human Anatomy 3

EXSC 2520 Human Anatomy Lab 1

EXSC 2530 Human Physiology 3

EXSC 2540 Human Physiology Lab 1

In addition to the above requirements, students should consider the following two recommended elective math courses:

MATH 4740 3

MATH 4750 3

Below are sample plans of study for the four concentrations. Consult your degree audit for your program requirements.

- [Physics -Physics Concentration, BS](#)
- [Physics -Applied Physics Concentration, BS](#)
- [Physics -Astrophysics Concentration, BS](#)
- [Physics -Medical Physics Concentration, BS](#)

**Physics -Physics Concentration, BS**

**First Year**

**First Term Hours**

NSM 1000 Foundations of Academic Success for Science and Math Majors 2

PHYS 1910 Frontiers Of Physics And Astronomy 3

PHYS 2130 Physics For Science And Engineering Majors I 4

PHYS 2135 Physics for Science and Engineering Majors I - Lab 1

MATH 1830 Calculus I For Mathematicians, Scientists And Educators 4

or MATH 1850 Single Variable Calculus I

ENGL 1110	College Composition I	3
<b>Hours</b>		<b>17</b>
<b>Second Term</b>		
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
MATH 1840 or MATH 1860	Calculus II For Mathematicians, Scientists And Educators or Single Variable Calculus II	4
MATH 1890 or MATH 2890	Elementary Linear Algebra (Or Math 2890) or Numerical Methods And Linear Algebra	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
<b>Hours</b>		<b>15</b>

**Second Year**

**First Term**

PHYS 3310	Modern Physics I	3
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 2850	Elementary Multivariable Calculus	4
MATH 3610	Statistical Methods I	3
<b>Hours</b>		<b>15</b>

**Second Term**

PHYS 3180	Intermediate Laboratory	3
PHYS 3410	Thermal Physics	3
MATH 2860	Elementary Differential Equations	3
EECS 1500	Introduction to Programming	3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>

**Third Year**

**First Term**

PHYS 4210	Theoretical Mechanics	3
PHYS 4230	Electricity And Magnetism I	3
Arts/Humanities Core		3
Writing Across the Curriculum (WAC) Non-Physics		3
Non-US Diversity		3
<b>Hours</b>		<b>15</b>

**Second Term**

PHYS 4240	Electricity And Magnetism II	3
PHYS 4310	Quantum Mechanics	3
Select one in Major Level BIOL, EEES, eg	<sup>3-4 hours depending on course selection</sup>	3
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	
EEES 2010	Introduction To Environmental Studies	
EEES 2100	Fundamentals Of Geology	
EEES 2150	Biodiversity	

Diversity of US		3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>

**Fourth Year**

**First Term**

PHYS 4580 or PHYS 4780	Molecular And Condensed Matter Laboratory or Atomic And Nuclear Physics Laboratory	3
PHYS 4910	Research Problems-Physics And Astronomy <sup>(1-3 hrs)</sup>	2
PHYS 4950	Undergraduate Professional Development Seminar	1
Arts/Humanities Core		3
Electives		6
<b>Hours</b>		<b>15</b>

**Second Term**

PHYS 4910	Research Problems-Physics And Astronomy	2
PHYS 4920	Senior Capstone Project	1
Electives		10
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>120</b>

**Physics -Applied Physics Concentration, BS**

**First Year**

<b>First Term</b>		<b>Hours</b>
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
PHYS 1910	Frontiers Of Physics And Astronomy	3
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
MATH 1830 or MATH 1850	Calculus I For Mathematicians, Scientists And Educators or Single Variable Calculus I	4
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>17</b>

**Second Term**

PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
MATH 1840 or MATH 1860	Calculus II For Mathematicians, Scientists And Educators or Single Variable Calculus II	4
MATH 1890 or MATH 2890	Elementary Linear Algebra or Numerical Methods And Linear Algebra	3



ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
<b>Hours</b>		<b>15</b>

**Second Year****First Term**

PHYS 3310	Modern Physics I	3
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 2850	Elementary Multivariable Calculus	4
MATH 3610	Statistical Methods I	3
<b>Hours</b>		<b>15</b>

**Second Term**

PHYS 3180	Intermediate Laboratory	3
PHYS 3410	Thermal Physics	3
MATH 2860	Elementary Differential Equations	3
EECS 1500	Introduction to Programming	3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>

**Third Year****First Term**

PHYS 4210	Theoretical Mechanics	3
PHYS 4230	Electricity And Magnetism I	3
Arts/Humanities Core		3
Writing Across the Curriculum (WAC) Non-Physics course		3
Non-US Diversity		3
<b>Hours</b>		<b>15</b>

**Second Term**

PHYS 4240	Electricity And Magnetism II	3
PHYS 4310	Quantum Mechanics	3
Select one in Major Level BIOL, EEES, eg	<sup>3-4 hours depending on course selection</sup>	3
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	
EEES 2010	Introduction To Environmental Studies	
EEES 2100	Fundamentals Of Geology	
EEES 2150	Biodiversity	
Diversity of US		3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>

**Fourth Year****First Term**

PHYS 3610	Optics And Lasers	3
PHYS 4510	Physics Of Condensed Matter	3
PHYS 4910	Research Problems-Physics And Astronomy <sup>(1-3 hrs)</sup>	2
PHYS 4950	Undergraduate Professional Development Seminar	1
Arts/Humanities Core		3

Electives		3
<b>Hours</b>		<b>15</b>

**Second Term**

PHYS 4580 or PHYS 4780	Molecular And Condensed Matter Laboratory or Atomic And Nuclear Physics Laboratory	3
PHYS 4910	Research Problems-Physics And Astronomy <sup>(1-3 hrs)</sup>	2
PHYS 4920	Senior Capstone Project	1
Electives		4
Physics or Eng 3000/4000 Level		3
<b>Hours</b>		<b>13</b>

**Total Hours 120****Physics -Astrophysics Concentration, BS****First Year**

<b>First Term</b>		<b>Hours</b>
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
PHYS 1910	Frontiers Of Physics And Astronomy	3
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
ASTR 2010	Solar System Astronomy	3
MATH 1830 or MATH 1850	Calculus I For Mathematicians, Scientists And Educators or Single Variable Calculus I	4
<b>Hours</b>		<b>17</b>

**Second Term**

PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
ASTR 2020	Stars, Galaxies, And The Universe	3
MATH 1840 or MATH 1860	Calculus II For Mathematicians, Scientists And Educators or Single Variable Calculus II	4
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>15</b>

**Second Year****First Term**

PHYS 3310	Modern Physics I	3
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 2850	Elementary Multivariable Calculus	4
MATH 3610	Statistical Methods I	3
CSET 1100	Introduction to Computer Science and Engineering Technology	3
<b>Hours</b>		<b>18</b>



**Second Term**

ASTR 3880	Foundations of Astronomy	4
MATH 1890 or MATH 2890	Elementary Linear Algebra or Numerical Methods And Linear Algebra	3
MATH 2860	Elementary Differential Equations	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
<b>Hours</b>		<b>13</b>

**Third Year**

**First Term**

PHYS 4210	Theoretical Mechanics	3
PHYS 4230	Electricity And Magnetism I	3
Select one in Major Level BIOL, EEES, eg <sup>3-4 hours depending on course selection</sup>		3
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	
EEES 2010	Introduction To Environmental Studies	
EEES 2100	Fundamentals Of Geology	
EEES 2150	Biodiversity	
Writing Across the Curriculum (WAC) Non-Physics		3
Non-US Diversity		3
<b>Hours</b>		<b>15</b>

**Second Term**

PHYS 3410	Thermal Physics	3
PHYS 4240	Electricity And Magnetism II	3
PHYS 4310	Quantum Mechanics	3
Diversity of US		3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>

**Fourth Year**

**First Term**

ASTR 4810	Astrophysics I	3
ASTR 4880	Astrophysical Measurements	3
PHYS 4910	Research Problems-Physics And Astronomy <sup>1-3 hrs</sup>	2
PHYS 4950	Undergraduate Professional Development Seminar	1
Arts/Humanities Core		3
Elective		3
<b>Hours</b>		<b>15</b>

**Second Term**

ASTR 4820	Astrophysics II	3
PHYS 4910	Research Problems-Physics And Astronomy <sup>1-3 hrs</sup>	2
PHYS 4920	Senior Capstone Project	1
Arts/Humanities Core		3

Social Sciences Core	3
<b>Hours</b>	<b>12</b>
<b>Total Hours</b>	<b>120</b>

**Physics -Medical Physics Concentration, BS**

**First Year**

<b>First Term</b>		<b>Hours</b>
NSM 1000	Foundations of Academic Success for Science and Math Majors	2
PHYS 1910	Frontiers Of Physics And Astronomy	3
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
MATH 1830 or MATH 1850	Calculus I For Mathematicians, Scientists And Educators or Single Variable Calculus I	4
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>17</b>

**Second Term**

PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
MATH 1840 or MATH 1860	Calculus II For Mathematicians, Scientists And Educators or Single Variable Calculus II	4
MATH 1890 or MATH 2890	Elementary Linear Algebra or Numerical Methods And Linear Algebra	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
<b>Hours</b>		<b>15</b>

**Second Year**

**Third Term**

PHYS 3310	Modern Physics I	3
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 2850	Elementary Multivariable Calculus	4
MATH 3610	Statistical Methods I	3
<b>Hours</b>		<b>15</b>

**Fourth Term**

PHYS 3180	Intermediate Laboratory	3
PHYS 3410	Thermal Physics	3
MATH 2860	Elementary Differential Equations	3
EECS 1500	Introduction to Programming	3
Social Science Core		3
<b>Hours</b>		<b>15</b>

**Third Year**

**Fifth Term**

PHYS 4210	Theoretical Mechanics	3
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PHYS 4230	Electricity And Magnetism I	3
Arts/Humanities Core		3
Writing Across Curriculum (WAC) non-physics		3
Non-US Diversity		3

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**Hours** **15**

**Sixth Term**

PHYS 4240	Electricity And Magnetism II	3
PHYS 4310	Quantum Mechanics	3
Diversity of US		3
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1

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**Hours** **14**

**Fourth Year****Seventh Term**

PHYS 4430	Medical Physics I	3
PHYS 4580 or PHYS 4780	Molecular And Condensed Matter Laboratory or Atomic And Nuclear Physics Laboratory	3
PHYS 4910	Research Problems-Physics And Astronomy <sup>1-3 hrs</sup>	2
PHYS 4950	Undergraduate Professional Development Seminar	1
EXSC 2510	Human Anatomy	3
EXSC 2520	Human Anatomy Lab	1
Arts/Humanities Core		3

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**Hours** **16**

**Eighth Term**

PHYS 4440	Medical Physics II	3
PHYS 4910	Research Problems-Physics And Astronomy <sup>1-3 hrs</sup>	2
PHYS 4920	Senior Capstone Project	1
EXSC 2530	Human Physiology	3
EXSC 2540	Human Physiology Lab	1
Social Sciences Core		3

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**Hours** **13**

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**Total Hours** **120**

## Learning Outcomes

- PLO 1. analyze which physical processes are relevant to a given system;
- PLO 2. assess cause and effect in physical systems by formulating evidence-based logical arguments;
- PLO 3. solve (using the appropriate mathematical techniques) any advanced undergraduate problem from the core areas of physics (Newtonian mechanics, electromagnetism, statistical mechanics, quantum theory, and relativity) as well as the area of their concentration;

- PLO 4. perform experiments to measure physical properties of interest and evaluate their observations, including estimating the uncertainties associated with their measurements;
- PLO 5. practice oral and written communication skills appropriate to their concentration;
- PLO 6. determine relevant informational resources appropriate to their concentration;
- PLO 7. demonstrate ethical scientific and academic conduct;
- PLO 8. apply collaboration skills in a scientific context.

## Minor in Astrophysics

Students seeking a minor in astrophysics must complete 23 hours of course work in physics as follows:

Code	Title	Hours
Select one of the following sequences:		10-12
PHYS 2130 & PHYS 2135 & PHYS 2140 & PHYS 2145	Physics For Science And Engineering Majors I and Physics for Science and Engineering Majors I - Lab and Physics For Science And Engineering Majors II and Physics for Science and Engineering Majors II - Lab	
PHYS 2070 & PHYS 2075 & PHYS 2080 & PHYS 2085 & PHYS 2100	General Physics I and General Physics I - Lab and General Physics II and General Physics II - Lab and Physics With Calculus	
PHYS 3310	Modern Physics I	3
ASTR 2010	Solar System Astronomy	3
ASTR 2020	Stars, Galaxies, And The Universe	3
ASTR 3880	Foundations of Astronomy	4
<b>Total Hours</b>		<b>23-25</b>

Students must maintain a minimum GPA of 2.0 for all course work in the minor. Candidates for the minor must have their course work verified and approved by a departmental Advisor or Chair prior to making formal application for graduation.

## Minor in Physics

Students seeking a minor in physics must complete 22 hours of course work in physics as follows:

Code	Title	Hours
Select one of the following sequences:		10-12
PHYS 2130 & PHYS 2135 & PHYS 2140 & PHYS 2145	Physics For Science And Engineering Majors I and Physics for Science and Engineering Majors I - Lab and Physics For Science And Engineering Majors II and Physics for Science and Engineering Majors II - Lab	

PHYS 2070 & PHYS 2075 & PHYS 2080 & PHYS 2085 & PHYS 2100	General Physics I and General Physics I - Lab and General Physics II and General Physics II - Lab and Physics With Calculus	
PHYS 3310	Modern Physics I	3
PHYS 3180	Intermediate Laboratory	3
Select two physics courses numbered above 3400		6
<b>Total Hours</b>		<b>22-24</b>

Students must maintain a minimum GPA of 2.0 for all course work in the minor. Candidates for the minor must have their course work verified and approved by a departmental advisor or Chair prior to making formal application for graduation.

## Minor in Renewable Energy

(This minor is interdisciplinary)

The Minor in Renewable Energy (MRE) has been established as an interdisciplinary minor program. It is designed for students in the STEM areas majoring in the following departments:

- Physics and Astronomy,
- Chemistry,
- Environmental Sciences,
- Biology,
- Mathematics,
- Mechanical, Industrial and Manufacturing Engineering,
- Chemical and Environmental Engineering,
- Electrical Engineering and Computer Science,
- Civil Engineering, and
- Bioengineering.

Students with other majors can enroll in the MRE provided they complete the prerequisite courses. The goal of the minor is to expose students to quantitative analyses of the use of energy in human societies, its consequences and environmental impacts. A primary focus will be on the advantages and complexities of introducing renewable energy resources. Students will be required to take at least one course in the social, political, and economic ramifications of the use of energy in general and renewable energy in particular. An internship is required to enhance the practical training of students.

**Course requirements are as follows:** Students must complete at least 21 hours of coursework, including an internship in a renewable energy related area. The following program of courses is required:

Code	Title	Hours
PHYS 3400	Physical Principles Of Energy Sources For Humans	3
EEES 2200	Climate Change	3
CHEM 3810	Chemistry of Sustainable Energy Resources	3
PHYS 4940	Internship in Renewable Energy	3
PSC 4340 or ECON 3240	Environmental Policy Environmental Economics	3
Select two of the following:		6

PHYS 4400	Principles and Varieties of Solar Energy	
MIME 4980	Special Topics (Renewable Energy)	
CHEE/BIOE 4980	Special Topics In Chemical Engineering (Biofuels)	
CHEE 4980	Special Topics In Chemical Engineering (Fuel Cells and the Hydrogen Economy)	
<b>Total Hours</b>		<b>21</b>

## Prerequisites

Code	Title	Hours
PHYS 2080	General Physics II (or higher)	4
PHYS 2085	General Physics II - Lab	1
CHEM 1240	General Chemistry II	4
Both courses under CHEE 4980 require MATH 1850		

## Faculty

### Department of Biological Sciences

**Brian P. Ashburner**, 2001, Associate professor and Associate Dean, B.A., St. Anselm College; Ph.D., Loyola University of Chicago

**Tomer Avidor-Reiss**, 2012, Professor, B.S., Hebrew University; Ph.D., Weizmann Institute of Science

**Bruce Bamber**, 2006, Associate professor, B.Sc., University of Calgary; Ph.D., University of Washington

**Deborah Chadee**, 2005, Professor, B.S., University of Manitoba; Ph.D., University of Manitoba

**Qian Chen**, 2016, Professor, B.S., Peking University; M.S., Institute of Genetics, Chinese Academy of Science; Ph.D., University of Texas, Austin

**Heather Conti**, 2015, Associate professor, B.S., State University of New York College at Fredonia; Ph.D., University of Buffalo

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**Rafael Garcia-Mata**, 2012, Professor, B.S. Universidad Nacional de Mar del Plata; PhD, University of Alabama at Birmingham

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**Sally Harmych**, 2006, Distinguished University Lecturer, B.S., Ph.D. University of Toledo

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**Wei Niu**, 2023, Assistant Professor, B.S., Shandong Normal University, M.S., Institute of Botany, Chinese Academy of Sciences, Ph.D., University of Texas at Austin

**John Plenefisch**, 1996, Associate Professor and Associate Dean, B.S., University of Connecticut; Ph.D., Massachusetts Institute of Technology

**Lirim Shemshedini**, 1993, Professor, B.S., University of Michigan; Ph.D., University of Vermont

**Robert Steven**, 2006, Senior lecturer, B.Sc., Ph.D., University of Toronto

**William Taylor**, 2003, Professor and Associate Chair, B.S., University of Winnipeg; Ph.D., University of Manitoba

## Department of Chemistry and Biochemistry

**Peter R. Andreana**, 2012, Professor, B.S., Brock University; Ph.D., Wayne State University

**John J. Bellizzi, III**, 2008, Associate professor, S.B., Massachusetts Institute of Technology; M.S., Ph.D., Cornell University

**Terry P. Bigioni**, 2006, Professor, B.Sc., M.Sc., University of Toronto; Ph.D., Georgia Institute of Technology

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**Mark R. Mason**, 1998, Professor, B.S., Bowling Green State University; Ph.D., Iowa State University

**Kristi L. Mock**, 2014, Senior lecturer, B.S., Ph.D., The University of Toledo

**Timothy C. Mueser**, 2000, Professor, B.S., Eureka College; Ph.D., University of Nebraska

**Joseph A. R. Schmidt**, 2004, Professor, B.S., Kansas State University; Ph.D., University of California-Berkeley

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## Department of Environmental Sciences

**Richard H. Becker**, 2008, Professor, B.A., Washington University; M.A., Washington University; Ph.D., Western Michigan University

**Jonathan M. Bossenbroek**, 2005, Professor and chair, B.S., Calvin College; M.S., University of Wisconsin; Ph.D., Colorado State University

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**Timothy G. Fisher**, 2003, Professor, B.S., University of Alberta; M.S., Queen's University; Ph.D., University of Calgary

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**Funda Gultepe**, 2018, Assistant professor, B.Sc., M.S., Ankara University (Turkey); PhD., University of Oklahoma

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**William D. Kalies**, 2023, Professor and Data Science Program Director, B.S., Ohio State University; M.S and Ph.D., Cornell University

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**Xunming Deng**, 1996, Professor, M.S., Ph.D., University of Chicago

**Randall J. Ellingson**, 2008, Professor and PVIC Endowed Chair, B.A., Carleton College; M.S., Ph.D., Cornell University

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**Sanjay V. Khare**, 2004, Professor, Ph.D., University of Maryland, College Park

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**J.D. Smith**, 2008, Professor, S.B., Massachusetts Institute of Technology; M.S., Ph.D., Cornell University

**Zhaoning Song**, 2024, Assistant Professor, B.S., Xiamen University; Ph.D., The University of Toledo

**Elijah Visbal**, 2019, Associate professor, B.S., Carnegie Mellon University; A.M., Ph.D., Harvard University

**Yanfa Yan**, 2011, Distinguished University Professor, B.S., M.S., Ph.D., Wuhan University

# College of Nursing

## Undergraduate Catalog 2024-2025

Health Science Campus  
Collier Building  
3000 Arlington Avenue  
Toledo, Ohio 43614  
419.383.5810  
admitnurse@utoledo.edu

### Mission Statement

The mission of the UToledo College of Nursing is to improve the human condition; to educate professional nurses in a manner that engages and serves a diverse learner population as part of a larger metropolitan university, to discover and disseminate nursing knowledge that informs evidence-based practice for quality patient outcomes, and to address the service needs of our stakeholders through innovative programs and entrepreneurial initiatives.

### Contacts

Undergraduate Nursing Advising Office  
University Hall, RM 2110  
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UGNursingAdvising@UToledo.edu ()

Dale Pelz, Jr., MS, Assistant Director of Undergraduate Student Services  
Eric Gullufsen, MA, Nursing Academic Advisor  
Dawn Ray, MEd, Nursing Academic Advisor

### Degrees Offered

The College of Nursing educates students to enter varied professional career paths as baccalaureate, masters, or doctoral prepared nurses.

Practice settings include hospitals, long-term care, home health, rehabilitation, schools, community centers, and more. Our graduates pursue opportunities in patient care, teaching, management, and service settings while leading innovative evidence-based practices that improve the human condition.

### Degrees Offered

Bachelor of Science in Nursing

- BSN Pre-Licensure Track (p. 458)
- RN-BSN Track (p. 460)

#### NURS 1000 Professional Nursing Orientation

[1 credit hour]

Course provides opportunity for development of academic, personal, and interpersonal skills required to become a successful, independent learner, introduces student to professional nursing as a career.

**Term Offered:** Spring, Fall

#### NURS 3020 Nursing to Promote Wellness

[4 credit hours]

Focus on wellness and primary prevention across the lifespan. Introduction to nursing as a discipline. Emphasis on concepts of wellness, communication, lifespan, clinical judgment, and physiologic processes. Recognize individuals in context of family and community. Student experiences in community-based settings.

**Corequisites:** NURS 3030, NURS 3080, NURS 3150

**Term Offered:** Spring, Summer, Fall

#### NURS 3030 Evidence-Based Practice in Nursing

[3 credit hours]

Introduction to Evidence-Based Practice in nursing, including understanding nursing research (scientific evidence) and its application to nursing practice. Skills learned in this course include appraisal of nursing evidence, integration of the best evidence into nursing practice, and promoting ethical principles in the conduct of nursing research and evidence-based practice.

**Corequisites:** NURS 3020, NURS 3080, NURS 3150

**Term Offered:** Spring, Summer, Fall

#### NURS 3040 Nursing to Promote Wellness Across the Lifespan

[5 credit hours]

Focus on wellness and primary prevention across the lifespan. Introduction to nursing as a discipline. Emphasis on concepts of wellness, communication, lifespan, clinical judgment and physiologic processes. Recognize individuals in context of family and community. Student experiences in community-based settings.

**Corequisites:** NURS 3080, NURS 3150, NURS 3190

**Term Offered:** Spring, Summer, Fall

#### NURS 3080 Fundamentals of Nursing and Assessment Across the Lifespan

[5 credit hours]

Focus on holistic assessment of individuals across the lifespan. Emphasis on assessment, skills, technology and professional nursing role. Experiential learning with peers in a simulated environment.

**Corequisites:** NURS 3020, NURS 3030, NURS 3150

**Term Offered:** Spring, Summer, Fall

#### NURS 3150 Pathopharmacology 1

[3 credit hours]

Focus on fundamental concepts in pathophysiology and pharmacology across the life span. Foundation for understanding disease processes and drugs [i.e. therapeutic outcomes and potential drug interactions].

**Corequisites:** NURS 3020, NURS 3030, NURS 3080

**Term Offered:** Spring, Summer, Fall

#### NURS 3190 Nursing Research 1

[2 credit hours]

Focus on introduction of concepts, issues, and processes in nursing research.

**Corequisites:** NURS 3040, NURS 3080, NURS 3150

**Term Offered:** Spring, Summer, Fall

**NURS 3220 Medical-Surgical Nursing 1**

[5 credit hours]

Focus on holistic care of adults and older adults in acute-care setting experiencing health problems. Incorporates concepts of leadership and management with an emphasis on teamwork and communication. Recognizes individuals in context of family and community.

**Prerequisites:** NURS 3020 with a minimum grade of C and NURS 3030 with a minimum grade of C and NURS 3080 with a minimum grade of C and NURS 3150 with a minimum grade of C

**Corequisites:** NURS 3280, NURS 3540, NURS 4070

**Term Offered:** Spring, Summer, Fall

**NURS 3280 Advanced Fundamentals**

[3 credit hours]

Focus on application of assessment skills and demonstrating safe procedures for high risk interventions in simulated experiences. Emphasis on the concepts of clinical judgment, professional behaviors, and collaboration.

**Prerequisites:** NURS 3020 with a minimum grade of C and NURS 3030 with a minimum grade of C and NURS 3150 with a minimum grade of C and NURS 3080 with a minimum grade of C

**Corequisites:** NURS 3220, NURS 3540, NURS 4070

**Term Offered:** Spring, Summer, Fall

**NURS 3290 Nursing Research 2**

[1 credit hour]

Introduction to evidence based practice. Emphasis is on learning how to evaluate research for evidence based practice in nursing as a baccalaureate nurse.

**Prerequisites:** NURS 3040 with a minimum grade of C and NURS 3190 with a minimum grade of C and NURS 3150 with a minimum grade of C and NURS 3080 with a minimum grade of C

**Corequisites:** NURS 3300, NURS 3400, NURS 3540

**Term Offered:** Spring, Summer, Fall

**NURS 3300 Nursing Care of Persons with Health Challenges**

[4 credit hours]

Focus on holistic care of adults and older adults in acute care settings experiencing health problems. Emphasis on the concepts of leadership, collaboration, and communication. Recognizes individuals in context of family and community.

**Prerequisites:** NURS 3040 with a minimum grade of C and NURS 3190 with a minimum grade of C and NURS 3080 with a minimum grade of C and NURS 3150 with a minimum grade of C

**Corequisites:** NURS 3280, NURS 3400, NURS 3540

**Term Offered:** Spring, Summer, Fall

**NURS 3310 Mental Health Nursing**

[4 credit hours]

Focus on nursing care of persons across the lifespan in the acute care setting with mental health issues. Emphasis on concepts related to coping and stress tolerance; emotion; cognitive function; and maladaptive behavior.

**Prerequisites:** NURS 3280 with a minimum grade of C and NURS 3220 with a minimum grade of C and NURS 3540 with a minimum grade of C and NURS 4070 with a minimum grade of C

**Corequisites:** NURS 3320, NURS 3330, NURS 4630

**Term Offered:** Spring, Fall

**NURS 3320 Medical-Surgical Nursing 2**

[5 credit hours]

The purpose of the course is to focus on care of adult persons in medical-surgical environments in the community. Course materials will assist with knowledge required to care for these persons.

**Prerequisites:** NURS 3220 (may be taken concurrently) with a minimum grade of C and NURS 3280 (may be taken concurrently) with a minimum grade of C and NURS 3540 (may be taken concurrently) with a minimum grade of C and NURS 4070 (may be taken concurrently) with a minimum grade of C

**Corequisites:** NURS 3310, NURS 3330, NURS 4630

**Term Offered:** Spring, Fall

**NURS 3330 Pediatric Nursing**

[4 credit hours]

The student has opportunities to gain experience in nursing care of infants, children and adolescents within families and groups. Clinical experiences are in wellness, acute and chronic care settings.

**Prerequisites:** NURS 4070 with a minimum grade of C and NURS 3540 with a minimum grade of C and NURS 3220 with a minimum grade of C and NURS 3280 with a minimum grade of C

**Corequisites:** NURS 3310, NURS 3320, NURS 4630

**Term Offered:** Spring, Fall

**NURS 3400 Family Health**

[4 credit hours]

Focus on health, wellness and illness of child - bearing families and children across various settings. Emphasis on concepts of gas exchange, sexuality, reproduction, grief, mood and affect, family, safety, advocacy and family communication. Recognizes individuals in context of family and community.

**Prerequisites:** NURS 3040 with a minimum grade of C and NURS 3190 with a minimum grade of C and NURS 3150 with a minimum grade of C and NURS 3080 with a minimum grade of C

**Corequisites:** NURS 3280, NURS 3300, NURS 3540

**Term Offered:** Spring, Summer, Fall

**NURS 3540 Pathopharmacology 2**

[3 credit hours]

Focuses on selected alterations and related pharmacology across the life span. Foundation for understanding disease processes and drugs [i.e. therapeutic outcomes and potential drug interactions]. Basis for critical thinking in nursing to help clients cope with effects of illness and return to health. Emphasis on concepts of: clotting, elimination, gas exchange, intracranial regulation, mood & affect, nutrition, patient education, perfusion, reproduction, sensory perception, tissue integrity.

**Prerequisites:** NURS 3020 with a minimum grade of C and NURS 3030 with a minimum grade of C and NURS 3150 with a minimum grade of C and NURS 3080 with a minimum grade of C

**Corequisites:** NURS 3220, NURS 3280, NURS 4070

**Term Offered:** Spring, Summer, Fall



**NURS 4070 Family Health Nursing**

[4 credit hours]

Focus on health, wellness and illness of child-bearing families and women across the lifespan. Emphasis on concepts of gas exchange, sexuality, reproduction, grief, mood and affect, family, safety, advocacy, and family communication. Recognizes individuals in context of family and community.

**Prerequisites:** NURS 3020 with a minimum grade of C and NURS 3030 with a minimum grade of C and NURS 3080 with a minimum grade of C and NURS 3150 with a minimum grade of C

**Corequisites:** NURS 3220, NURS 3280, NURS 3540

**Term Offered:** Spring, Summer, Fall

**NURS 4100 Transition to BSN Practice**

[3 credit hours]

Explores concepts relevant to the transition from ADN/Diploma RN role to BSN nursing practice.

**Term Offered:** Spring, Summer, Fall

**NURS 4110 Applied Health Assessment Across the Lifespan**

[3 credit hours]

This course emphasizes the concepts and skills essential to the assessment parameter of the nursing process to broaden the learners' knowledge base and to increase assessment skills in all settings.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4130 Nursing Care of Persons in Crisis 1**

[4 credit hours]

Focus on nursing care of persons across the lifespan in the acute care setting with mental health issues. Emphasis on concepts related to coping and stress tolerance; emotion; cognitive function; and maladaptive behavior.

**Prerequisites:** NURS 3280 with a minimum grade of C and NURS 3300 with a minimum grade of C and NURS 3540 with a minimum grade of C and NURS 3290 with a minimum grade of C and NURS 3400 with a minimum grade of C

**Corequisites:** NURS 4240, NURS 4260

**Term Offered:** Spring, Summer, Fall

**NURS 4240 Nursing Care of Persons in Crisis 2**

[8 credit hours]

Focus on changes in health in acute care settings across the lifespan. Emphasis on concepts related to oxygenation and hemostasis; homeostasis and regulation; protection and movement, and coping and stress tolerance.

**Prerequisites:** NURS 3280 with a minimum grade of C and NURS 3300 with a minimum grade of C and NURS 3400 with a minimum grade of C and NURS 3290 with a minimum grade of C and NURS 3540 with a minimum grade of C

**Corequisites:** NURS 4130, NURS 4260

**Term Offered:** Spring, Summer, Fall

**NURS 4260 Professional Development**

[3 credit hours]

This course facilitates the development and implantation of strategies to enable the synthesis of professional development for the baccalaureate nurse. The course enables the student to recognize and understand the critical role that nurses play in health care delivery. Students will analyze principles of professional practice and will explore strategies to model the professional practice role in current clinical situations. This course also assists the student in the online classroom environment.

**Prerequisites:** NURS 3280 with a minimum grade of C and NURS 3300 with a minimum grade of C and NURS 3540 with a minimum grade of C and NURS 3290 with a minimum grade of C and NURS 3400 with a minimum grade of C

**Corequisites:** NURS 4130, NURS 4240

**Term Offered:** Spring, Summer, Fall

**NURS 4300 Informatics in Nursing**

[2 credit hours]

Focuses on current and future topics of informatics in nursing. Foundation for competency in documentation, informatics-based theory, implementation of evidence-based quality measures, evolving trends, legal, ethical implications.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4340 Population Focused Care**

[5 credit hours]

This course facilitates the development and implementation of strategies to enable the synthesis of professional development for the baccalaureate nurse within the community. The course enables the student to recognize and understand the critical role that nurses play in community and public health care delivery. Students will analyze principles of public health and will explore strategies to model the professional practice role in current community clinical situations. This course also assists the student in the online classroom environment. This is an online course.

**Prerequisites:** NURS 4350 (may be taken concurrently) with a minimum grade of C or NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4360 Theory and Collaborative Practice**

[3 credit hours]

This course facilitates the development and implementation of strategies to enable the synthesis of nursing theory and collaborative practice for the baccalaureate nurse. The course enables the student to recognize and understand the critical role that nurses play in health care delivery collaboration. Students will analyze theories of nursing and will explore strategies to apply nursing theory in current clinical situations. This course also assists the student in the online classroom environment. This is an online course.

**Prerequisites:** NURS 4350 (may be taken concurrently) with a minimum grade of C or NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4370 Health Promotion and Wellness Across the Lifespan**

[3 credit hours]

Focus on wellness and health promotion across the lifespan. Health promotion has become a national priority and is a foundation to the care for people of all ages.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4400 Quality and Safety in Nursing**

[2 credit hours]

Course examines responsibilities of baccalaureate prepared nurses in healthcare teams and ways they provide patient safety and quality care leading to optimum patient outcomes. This is an online course.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4500 Leadership and Professional Development**

[3 credit hours]

Focus on the professional nurse's role in applying the principles of leadership. Emphasis will be on leadership and professional development concepts to achieve safe, high quality patient-centered nursing care.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4510 Population Health**

[4 credit hours]

Focuses on the design and implementation of nursing care for aggregates and communities across the lifespan. Emphasis on professional nursing and health care concepts.

**Prerequisites:** NURS 3320 with a minimum grade of C and NURS 3310 with a minimum grade of C and NURS 3330 with a minimum grade of C and NURS 4630 with a minimum grade of C

**Corequisites:** NURS 4620, NURS 4700, NURS 4760

**Term Offered:** Spring, Summer

**NURS 4520 Pathophysiology for the Practicing RN**

[3 credit hours]

Basic concepts of pathophysiology and pharmacology. Prepares for critical thinking in application of concepts to nursing practice.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4610 Translating Evidence for Nursing Practice**

[3 credit hours]

Introduces concepts, issues and processes in nursing evidence-based practice (EBP). Emphasis is on application of scientific evidence as a baccalaureate-prepared nurse, including critical appraisal and synthesis of evidence for EBP.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C and MATH 2600 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4620 Precepted Clinical Practicum**

[5 credit hours]

Focus on partnering with clients (individuals, families, groups and/or communities) who are dealing with complex health problems of any age group and setting. Emphasis on concepts of health-care delivery, attributes and roles of nurse, and care competencies. Includes weekly seminars relevant to clinical issues.

**Prerequisites:** NURS 3310 with a minimum grade of C and NURS 3320 with a minimum grade of C and NURS 4630 with a minimum grade of C and NURS 3330 with a minimum grade of C

**Corequisites:** NURS 4510, NURS 4700, NURS 4760

**Term Offered:** Spring, Summer

**NURS 4630 Management of Care**

[2 credit hours]

This course focus on the principles and theories of management/ leadership as a basis for provision of nursing care. Emphasis on the concepts of health care delivery, health care infrastructures, and attributes and roles of the registered nurse.

**Prerequisites:** NURS 3280 with a minimum grade of C and NURS 3220 with a minimum grade of C and NURS 4070 with a minimum grade of C and NURS 3540 with a minimum grade of C

**Corequisites:** NURS 3310, NURS 3320, NURS 3330

**Term Offered:** Spring, Fall

**NURS 4700 Nursing Care of Persons and Families with Complex Care Needs**

[3 credit hours]

Focus on nursing care of people with complex health issues across the lifespan. Emphasis on care coordination and Interprofessional collaborative teamwork.

**Prerequisites:** NURS 3310 with a minimum grade of C and NURS 3320 with a minimum grade of C and NURS 3330 with a minimum grade of C and NURS 4630 with a minimum grade of C

**Corequisites:** NURS 4510, NURS 4620, NURS 4760

**Term Offered:** Spring, Summer

**NURS 4760 Professional Nursing Competency**

[3 credit hours]

Focus on preparation for the National Council Licensure Examination for Registered Nurses (NCLEX – RN). All concepts in the curriculum are included in comprehensive review.

**Prerequisites:** NURS 3310 with a minimum grade of C and NURS 3320 with a minimum grade of C and NURS 3330 with a minimum grade of C and NURS 4630 with a minimum grade of C

**Corequisites:** NURS 4510, NURS 4620, NURS 4700

**Term Offered:** Spring, Summer

**NURS 4990 Independent Study**

[1-3 credit hours]

Independent study in nursing.

**Term Offered:** Spring, Summer, Fall

## BSN

Students pursuing a BSN degree that leads to nursing licensure complete four years of course work in the prelicensure track of the College of Nursing. Following completion of prerequisite courses, the student applies for admission to the upper division. Students take nursing

courses on the Health Science Campus. 120 semester credit hours are required for graduation.

Admission to the upper division nursing program is competitive and requires a minimum cumulative GPA above 3.0. A minimum higher education GPA of 3.0 is required to apply. The College of Nursing requires a "C" or better in all coursework. A "C-" or lower is not acceptable. Therefore, all pre-requisite, UToledo Core Curriculum, and upper division courses must be taken for a letter grade. Pass/No Credit is only an option for "elective" courses that are not a pre-requisite, UToledo Core Curriculum or upper division course. Consult your Nursing Academic Advisor before choosing this option.

Nursing Academic Advisors will assist students to determine the semester for application to the major. Prerequisite courses must be completed prior to beginning the nursing major. Application deadlines are subject to change so please check with the Nursing Academic Advisors.

Code	Title	Hours
CHEM 1120	Chemistry For Health Sciences	4
ENGL 1110	College Composition I	3
BIOL 2010	Major Concepts In Biology	3
NURS 1000	Professional Nursing Orientation	1
PSY 1010	Principles Of Psychology	3
ENGL 2950	Technical Writing	3
HEAL 1800	Medical Terminology <sup>Elective</sup>	3
Elective		
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
MATH 2600	Introduction To Statistics	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
PSY 2510	Lifespan Developmental Psychology	3
Art/Humanities Core		
Social Sciences Core		
HEAL 2800	Principles Of Nutrition	3
EXSC 2590	Microbiology and Infectious Diseases	3
PHIL 3370	Medical Ethics	3
Diversity of US		
Non-US Diversity		
NURS 3080	Fundamentals of Nursing and Assessment Across the Lifespan	5
NURS 3150	Pathopharmacology 1	3
NURS 3280	Advanced Fundamentals	3
NURS 3540	Pathopharmacology 2	3
NURS 4510	Population Health	4
NURS 3020	Nursing to Promote Wellness	4
NURS 3030	Evidence-Based Practice in Nursing	3
NURS 3220	Medical-Surgical Nursing 1	5
NURS 3320	Medical-Surgical Nursing 2	5
NURS 4070	Family Health Nursing	4
NURS 3310	Mental Health Nursing	4
NURS 3330	Pediatric Nursing	4

NURS 4630	Management of Care	2
NURS 4620	Precepted Clinical Practicum	5
NURS 4700	Nursing Care of Persons and Families with Complex Care Needs	3
NURS 4760	Professional Nursing Competency	3

Below is a sample plan of study. Consult your degree audit for your program requirements.

## BSN - 4 Year

Students accepted into the College of Nursing should be academically prepared to be placed into MATH 2600 and CHEM 1120, otherwise students will be required to take MATH 1200 or MATH 1180 and/or CHEM 1110. The additional course credit can be used to meet the total credit hours required for graduation.

Students are required to successfully complete **120** credit hours with an overall grade point average of 2.0 or higher.

Students should consult their Degree Audit for coursework that fulfills the UToledo Core Curriculum.

First Term		Hours
CHEM 1120	Chemistry For Health Sciences	4
ENGL 1110	College Composition I	3
BIOL 2010	Major Concepts In Biology	3
NURS 1000	Professional Nursing Orientation	1
PSY 1010	Principles Of Psychology	3
<b>Hours</b>		<b>14</b>
Second Term		Hours
ENGL 2950	Technical Writing	3
HEAL 1800	Medical Terminology	3
Elective		4
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
<b>Hours</b>		<b>14</b>
Third Term		Hours
MATH 2600	Introduction To Statistics	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
PSY 2510	Lifespan Developmental Psychology	3
Arts/Humanities Core		3
Social Sciences Core		4
<b>Hours</b>		<b>17</b>
Fourth Term		Hours
HEAL 2800	Principles Of Nutrition	3
EXSC 2590	Microbiology and Infectious Diseases	3
PHIL 3370	Medical Ethics	3
Diversity of US		3
Non-US Diversity		3



Students must apply and be accepted into the upper division professional major. Admission is competitive based on academic performance. All major courses must be completed with a grade of "C" or higher. A cumulative GPA of 3.0 is required to apply.

	Hours	
<b>Fifth Term</b>		<b>15</b>
NURS 3020	Nursing to Promote Wellness	4
NURS 3080	Fundamentals of Nursing and Assessment Across the Lifespan	5
NURS 3150	Pathopharmacology 1	3
NURS 3030	Evidence-Based Practice in Nursing	3
	<b>Hours</b>	<b>15</b>
<b>Sixth Term</b>		
NURS 3280	Advanced Fundamentals	3
NURS 3220	Medical-Surgical Nursing 1	5
NURS 4070	Family Health Nursing	4
NURS 3540	Pathopharmacology 2	3
	<b>Hours</b>	<b>15</b>
<b>Seventh Term</b>		
NURS 3310	Mental Health Nursing	4
NURS 3330	Pediatric Nursing	4
NURS 4630	Management of Care	2
NURS 3320	Medical-Surgical Nursing 2	5
	<b>Hours</b>	<b>15</b>
<b>Eighth Term</b>		
NURS 4510	Population Health	4
NURS 4620	Precepted Clinical Practicum	5
NURS 4760	Professional Nursing Competency	3
NURS 4700	Nursing Care of Persons and Families with Complex Care Needs	3
	<b>Hours</b>	<b>15</b>
	<b>Total Hours</b>	<b>120</b>

- PLO 1. Incorporate liberal education as a basis for generalist professional nursing practice.
- PLO 2. Apply leadership principles, skills, and clinical reasoning for the delivery of safe quality care in a variety of settings across the lifespan.
- PLO 3. Integrate evidence-based and patient-centered care into nursing practice across the lifespan.
- PLO 4. Use technology and informatics for delivery of quality patient care and evaluation of outcomes.
- PLO 5. Examine factors that influence health care systems, policy, and finance.
- PLO 6. Apply inter- and intra-communication skills to improve healthcare.
- PLO 7. Promote, maintain, and restore health for individuals, families and populations.
- PLO 8. Demonstrate accountability for personal professionalism and professional values.

- PLO 9. Provide nursing care consistent with nursing theory in various healthcare environments.

## Registered Nurse - BSN

Registered nurses who graduated from an associate degree or diploma nursing program who have an active, unrestricted, unencumbered U.S. RN license, in the state where they plan to complete clinical experience, may enroll in the College of Nursing to earn a baccalaureate degree.

Nurses who have earned an associate degree or diploma degree in nursing with a 2.0 GPA and have an active, unrestricted, unencumbered RN license are eligible to apply. Completion of 120 semester credits is required for graduation. Required nursing courses are online so computer, internet access, and computer literacy are essential.

## RN-BSN Program

Code	Title	Hours
NURS 4100	Transition to BSN Practice	3
NURS 4110	Applied Health Assessment Across the Lifespan	3
NURS 4300	Informatics in Nursing	2
NURS 4340	Population Focused Care (a clinical practicum is required)	5
NURS 4360	Theory and Collaborative Practice	3
NURS 4370	Health Promotion and Wellness Across the Lifespan	3
NURS 4400	Quality and Safety in Nursing	2
NURS 4500	Leadership and Professional Development	3
NURS 4520	Pathopharmacology for the Practicing RN	3
NURS 4610	Translating Evidence for Nursing Practice	3
<b>Total Hours</b>		<b>30</b>

## RN - BSN

### UToledo Core requirements

**English Composition I** 3 credit hours

**English Composition II** 3 credit hours

**Math 2600 Statistics** 3 credit hours

[Pre-requisite: Math 1200 or Placement Test]

**Natural Sciences** (6 credit hours)

[two courses, one must include (1) laboratory; no more than one course from any discipline]

**Multicultural U.S. Diversity** (3 credit hours)

**Multicultural Non-U.S. Diversity** (3 credit hours)

**Social Science** (6 credit hours)

[no more than one course from any discipline]

**Arts and Humanities** (6 credit hours)

[no more than one course from any discipline]

In addition to the above courses, students may need additional courses from Mathematics, Arts and Humanities, Social Sciences, Multicultural Areas or Natural Sciences to fulfill the minimum core curriculum requirement of 36 credit hours. Additional credit hours may be necessary to achieve the **120 credit hours required for graduation**. Consult with your academic advisor.

Students are required to successfully complete 120 credit hours with an overall grade point average of 2.0 or higher

- The baccalaureate degree program in nursing at University of Toledo is accredited by the Commission on Collegiate Nursing Education (<http://www.ccnaccreditation.org>).
- The minimum GPA to apply is a 2.0

**Note: An additional 30 hours must be taken at the 3000-4000 level**

**Nursing courses are offered in a Competency Based Education (CBE) online format.**

*Below is a sample plan of study. Consult your degree audit for your program requirements.*

First Term		Hours
NURS 4100	Transition to BSN Practice	3
NURS 4110	Applied Health Assessment Across the Lifespan	3
NURS 4360	Theory and Collaborative Practice	3
NURS 4370	Health Promotion and Wellness Across the Lifespan	3
NURS 4610	Translating Evidence for Nursing Practice	3
<b>Hours</b>		<b>15</b>
Second Term		
NURS 4300	Informatics in Nursing	2
NURS 4340	Population Focused Care (a clinical practicum is required)	5
NURS 4400	Quality and Safety in Nursing	2
NURS 4500	Leadership and Professional Development	3
<b>Hours</b>		<b>12</b>
Third Term		
NURS 4520	Pathopharmacology for the Practicing RN	3
<b>Hours</b>		<b>3</b>
<b>Total Hours</b>		<b>30</b>

- PLO 1. Incorporate liberal education as a basis for generalist professional nursing practice.
- PLO 2. Apply leadership principles, skills, and clinical reasoning for the delivery of safe quality care in a variety of settings across the lifespan.
- PLO 3. Integrate evidence-based and patient-centered care into nursing practice across the lifespan.
- PLO 4. Use technology and informatics for delivery of quality patient care and evaluation of outcomes.
- PLO 5. Examine factors that influence health care systems, policy, and finance.
- PLO 6. Apply inter- and intra-communication skills to improve healthcare.
- PLO 7. Promote, maintain, and restore health for individuals, families and populations.
- PLO 8. Demonstrate accountability for personal professionalism and professional values.

- PLO 9. Provide nursing care consistent with nursing theory in various healthcare environments.

## Accreditation

The baccalaureate degree program has full approval by the Ohio Board of Nursing. The baccalaureate degree program, master's degree program, Doctor of Nursing Practice program and post-graduate APRN certificate programs at the University of Toledo are accredited by the Commission on Collegiate Nursing Education.

## Academic Policies

Refer to the **University Undergraduate Academic Policies** (<http://www.utoledo.edu/policies/>) that apply to all students. The College of Nursing may have stricter policies than the university that are based on accreditation standards and Ohio Board of Nursing requirements <http://www.utoledo.edu/policies/>.

## Admission Policies

### PRE-NURSING (for the Pre-Licensure Track)

All students are initially admitted into Pre-Nursing. Upon completion of the pre-nursing curriculum, there is a competitive admission process for the Upper Division.

#### Admission Requirements into Pre-Nursing

- **Direct Guaranteed Admission Pathway Requirements (only for First-time freshmen or First-time adult students):**
  - High School GPA of 3.8 or higher through our test-optional pathway OR High School GPA of 3.6 or higher and ACT score of 23/SAT score of 1130
  - AND
  - Achieve and maintain a UToledo GPA of 3.5 to have a guaranteed seat in the program. The priority application deadline for the direct admission option is January 1.
- **Traditional Pathway Requirements (for First-time freshmen or First-time adult students):**
  - High School GPA of 3.0 through our test-optional pathway OR High School GPA of 2.75 and ACT score of 19/SAT score of 990
  - A minimum cumulative higher education GPA of 3.0 to be eligible to apply for the upper division.
- **Transfer Pathway Requirements (for transfers from other schools or other UToledo majors):**
  - Must be in good standing with a cumulative higher education GPA of 2.75 and 12 graded semester hours
  - A minimum cumulative higher education GPA of 3.0 to be eligible to apply for the upper division.

## BACCALAUREATE PROGRAM

### Pre-Licensure Track

Admission to the upper division pre-licensure track is competitive. A minimum cumulative GPA of 3.0 is required to be eligible to apply for the upper division. Grades from **all** college courses determine



GPA (college credit plus, PSO, repeated courses and **all grade deleted courses**). Students may apply for up to 18 hours of grade deletion, per UToledo Policy. If you were granted Direct Guaranteed Admission as a freshman, you must maintain a UToledo GPA of 3.5 to qualify for your seat. Satisfactory completion of all prerequisite courses with a grade of "C" or higher must be achieved prior to beginning the upper division. The requirements apply equally to full-time, part-time, and transfer students.

Nursing Academic Advisors will assist students to determine the semester for application to the major. All students, Direct or Traditional Admission must submit an application. Prerequisite courses must be completed prior to beginning the upper division. Application deadlines are subject to change as communicated by Nursing Academic Advisors.

## RN-BSN Track

Registered nurses who graduated from an associate or a diploma nursing program with an active, unrestricted, unencumbered RN license may enroll in the College of Nursing to earn a baccalaureate degree. A minimum cumulative GPA of 2.0 on a 4.0 scale is required. Transfer credit evaluation is considered on an individual basis. A minimum of 30 hours must be taken in the major. Grades of "C" or higher must be achieved in all BSN courses.

## TRANSFER STUDENTS

To be eligible for transfer consideration, pre-licensure students need to have earned a minimum cumulative GPA of 2.75 on a 4.0 scale. Achieving the minimum GPA does not guarantee placement into the upper division.

To be eligible for transfer into the RN-BSN track, students must have an active, unrestricted, unencumbered RN license, and a minimum cumulative GPA of 2.0 on a 4.0 scale.

Students with transfer credit are expected to fulfill all UToledo and College of Nursing requirements for a degree as specified in the catalog for the year in which they are admitted to the university. Not all credit that transfers to UToledo will apply toward a degree in the College of Nursing.

Transferability of previously completed nursing courses is determined by the College of Nursing after the student submits official transcripts from all colleges and universities attended. In most cases, the student is expected to provide the Director with syllabi and course descriptions.

Evaluation must be completed before matriculation into the upper division.

Students who transfer from other institutions must take at least 30 semester hours at The University of Toledo. Official transcripts of records from all schools previously attended must be on file with the University of Toledo before the student will be permitted to register.

### CHANGE OF COLLEGE

Students who apply to the pre-licensure track must be in good standing with a cumulative GPA of 2.75 and 12 graded semester hours. Students who apply to the RN-BSN track must be in good academic standing with a cumulative GPA of 2.0 and 12 graded semester hours. Students should make an appointment with a Nursing Academic Advisor to discuss transfer requirements and an academic record review. All college requirements, including core requirements, prerequisites, and minimum

cumulative GPA must be fulfilled as specified in the catalog year for the semester in which the student changes into the College of Nursing.

## READMISSION

Students accepted into the upper division, who then decline, drop, or withdraw must reapply for admission to the upper division. Students dismissed from the nursing program are not eligible for readmission to the upper division.

Students who are readmitted must comply with existing university and CON requirements at the time of readmission. Absence of one academic year for any reason may require auditing of previous nursing courses.

## PROGRESSION (Pre-licensure)

Pre-licensure BSN students in the nursing major, will be dismissed from the nursing program if either of the following conditions are met:

- a. Two failures of the same required nursing course

OR

- b. Three failures of any required nursing courses
  - i. Students dismissed from the nursing program will receive a dismissal letter from the Associate Dean for Academic Affairs.
  - ii. Students may petition for readmission based on extenuating circumstances but are not guaranteed readmission.

## PROGRESSION (RN-BSN)

RN-BSN students in the nursing major, will be dismissed from the nursing program if the following condition is met:

- a. Students exceed 8 academic years for program completion.
  - i. Students dismissed from the nursing program will receive a dismissal letter from the Associate Dean for Academic Affairs.
  - ii. Students may petition for readmission based on extenuating circumstances but are not guaranteed readmission.

## Academic Performance Standards

The College of Nursing defines "good academic standing" as maintaining a cumulative GPA of 2.0 or higher (on a 4.0 scale) and achieving a GPA of at least 2.0 each semester. A grade of "C" or above is required on all prerequisite, UToledo core, and nursing courses (a grade of C- is not acceptable). If a UToledo nursing student retakes a course to improve a grade, they may petition to have the initial grade excluded from UToledo GPA computation in accordance with the Repeating a Course and Calculating GPA Policy. The student is responsible for maintaining professional standards of conduct and providing safe, effective care while enrolled in the program. Academic progression policies apply to full-time and part-time students. In all matters, the Dean's decision is final.

### Academic Misconduct

Nursing students are expected to maintain high standards of behavior. Plagiarism, cheating, failing to report, lying, and stealing are not tolerated and may lead to dismissal from the program. Non-adherence to testing policies and procedures results in zero points for the test and a possible course failure. Dismissal from the College of Nursing occurs with a major violation of academic standards. See the Undergraduate Student Handbook for the academic misconduct policy.

## Academic PROGRESSION

The College of Nursing adheres to the University of Toledo Academic Policies. A suspended student must submit an appeal in writing for readmission to the Senior Associate Dean of Academic Affairs and Research in the College of Nursing. Appeals must be received at least one month prior to the beginning of the academic term. Students suspended for a second time cannot enroll at UToledo for at least one year and must meet with the program director prior to re-enrollment. UToledo Policy - Academic Standing (<http://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-01%20Academic%20standing.pdf>)

## Dismissal

Administrative dismissal may occur when a student is noncompliant with health and immunization requirements, BLS, background check, conviction of a misdemeanor or felony. Violation of federal HIPAA standards are also grounds for dismissal. A student can be dismissed for academic performance including violation of academic honesty standards, unsafe patient care, and unprofessional conduct as identified in the Undergraduate Student Handbook.

## Student Responsibilities

### Transportation

Students are responsible for transportation to class and clinical settings. Clinical sites are located throughout Northern Ohio and Southeastern Michigan. The university provides bus transportation between Main Campus and Health Science Campus. Students can obtain schedules from the university website. Parking fees are enforced at UToledo and may apply at clinical sites.

### Criminal Records Check

Criminal record checks will be conducted on all students accepted for admission to College of Nursing programs and for any student visiting affiliated clinical facilities. Ohio students are required to have a BCII and FBI background check prior to matriculation into the program. If a student lives outside the state of Ohio, they need FBI only. The student is responsible for processing fees. Reports from BCII and FBI must be sent directly to the undergraduate program office from their organizations respectively. Duplicate reports from places of employment or other sources are not acceptable.

<https://www.utoledo.edu/policies/administration/humanresources/pdfs/3364-25-47%20Background%20check.pdf> (<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.utoledo.edu%2Fpolicies%2Fadministration%2Fhumanresources%2Fpdfs%2F3364-25-47%2520Background%2520check.pdf&data=05%7C02%7CCathy.Zimmer%40utoledo.edu%7Ca4cdf8b455b84d8b2d4708dcada14dd5%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C638576155509148003%7CUnknown>)

%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6IklhaWwiLCJkaWkiOiI%7C0%7C%7C%7C&sdata=1U%2BNWae9NIFh00Wb%2Bj25tQ4J%2F5MHHseuXcOkpunGDE%3D&reserved=0)

Students must declare and document misdemeanor and/or felony offenses that occur prior to admission in the nursing program and/or during program progression. Convictions may result in denial of admission to the program or dismissal after matriculation.

## Clinical Agency Requirements

Students must meet health and safety requirements based on agency, local, state, and federal government mandates. Students are responsible for the cost associated with the costs of these requirements. Documentation must be submitted at least 6 weeks before the start of the semester.

## Plan of Study

Students must consult with the Nursing Academic Advisor to develop a plan of study. BSN students follow the required sequence of courses as stated in this catalog. Courses in each semester of the nursing major, for the pre-licensure BSN program, are co-requisite to one another and pre-requisite to the next semester. Therefore, students who need to make changes to their plan of study are required to meet with the BSN Program Director and Nursing Academic Advisor prior to taking any action.

RN-BSN student enrollment is on a full-time or part-time basis, with one or more courses each semester. Students are expected to progress according to their plan of study. Plan of study changes must be discussed with the Nursing Academic Advisor and Program Director.

## Withdraw, DroP, and Not Reported Grade Policy

Student may be at risk for loss of financial aid with excessive hours of W, DR, and NR grades. Students who transfer into the College of Nursing from another college at The University of Toledo retain all accumulated W, DR, and NR grades. Failing grades as a result of academic dishonesty will remain in the student academic record and are not eligible for grade recalculation.

Upon Admission students receive a matriculation packet which includes professional, legal, ethical standards, general information, academic policies, student participation on committees and organization policies, and RN licensure information.

## Program Requirements

### Degree Requirements

The College of Nursing reserves the right to change any requirement, regulation, or provision. Changes will be publicized and take effect on the date they are approved. Only students admitted to the upper division are allowed to take NURS courses.

### Credit Hours

Students must complete a minimum of 120 hours of course work that includes UToledo Core Curriculum requirements and all required course work in the major. A minimum of 60 hours must be taken at the 2000 to



4000 level, and a minimum of 30 hours must be taken at the 3000 to 4000 level. Students are encouraged to use Degree Audit to review remaining requirements and meet with the Nursing Academic Advisor before every registration period to assess progress toward degree completion. If a student completes UToledo Core Curriculum requirements and required courses in the nursing major in less than 120 hours, the student must successfully complete elective courses to meet the total 120 hours.

## University Core Curriculum Requirements

Nursing students are required to complete the UToledo Core Curriculum requirements which include English composition, arts and humanities, social sciences, natural sciences, mathematics, and multicultural areas. Students are placed into chemistry and mathematics courses by ACT/SAT scores or placement tests in those subjects. Consult with the Nursing Academic Advisor for specific details.

## Orientation (NURS 1000)

All first-year, direct from high school, pre-nursing students must successfully pass NURS 1000.

## Faculty

*Larissa Barclay, DNP, NP-C, PMHNP-BC, CWCN, Assistant Professor & Psych-Mental Health Track Coordinator*

D.N.P., Oakland University; PMHNP-BC, University of Michigan; Adult; Primary Care NP, Wayne State University; Wound Ostomy & Continence, Metropolitan State University; M.S.N., University of Phoenix; B.S.N., University of Phoenix; ADN, Henry Ford Community College

*Susan Batten, PhD, APRN-CNS, FNP-C, Associate Professor & Chair, Department of Maternal, Pediatric, and Mental Health Nursing*

Ph.D., George Mason University (Nursing Administration); M.N., Emory University (Neonatal Perinatal Nursing); M.A., West Virginia University (Communication); B.S.N., George Mason University; HMSEC Medical College of Ohio

*Jennifer DeVries, DNP, RN, NP-C, Assistant Professor*

D.N.P., Wilkes University; Post-master's FNP certificate, The University of Toledo; M.S.N., The University of Toledo; B.S., Heidelberg

*Joanne Ehrmin, PhD, RN, CNS, Professor*

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*Sharmeta Gibbon, EdD, MSN, RN, CNE, Instructor*

Ed.D., Walden University; M.S.N., The University of Toledo; B.S.N., Bowling Green State University

*Elizabeth Grothaus, MSN, RN, CNS, Instructor*

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*Cindy Herrera, DNP, MSN, RN, PPCNP-BC, Instructor*

D.N.P., The University of Toledo; M.S.N., Medical University of Ohio

*Karen Hoblet, PhD, MSN, RN, CNL, Professor and Director GEM Program*

Ph.D., The University of Toledo; M.S.N., Medical College of Ohio; B.S.N., The University of Toledo

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D.N.P., Lourdes University; M.S.N., Walden University; B.S.N., Lourdes University; B.A. Psychology, The University of Toledo

*Lisa King, MSN, RN, WHCNP, Instructor*

M.S.N., University of Texas Health Care Science Center at Houston; B.S.N., University of Cincinnati

*Kelly Lewandowski, MSN, RN, Instructor*

M.S.N., The University of Phoenix; B.S.N., The University of Toledo

*Kathleen Mitchell, DNP, APRN-CNS, Assistant Professor*

D.N.P., The University of Toledo and Wright State University; M.S.N., Thomas Jefferson University; B.S.N., Ursuline College

*Karen Mortland, PhD, RN, CNE, Instructor*

Ph.D., The University of Toledo; M.S.N., The University of Toledo; B.S.N., Lourdes University

*Holly Myers, DNP, RN, CNE, Assistant Professor*

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# College of Pharmacy and Pharmaceutical Sciences

## UNDERGRADUATE CATALOG 2024-2025

Main Campus  
Wolfe Hall 1227  
419.530.2010

Health Science Campus  
Frederic and Mary Wolfe Center 155  
419.383.1904  
[pharmacy@utoledo.edu](mailto:pharmacy@utoledo.edu)

### MISSION STATEMENT

The mission of the College of Pharmacy and Pharmaceutical Sciences is to educate students to become pharmacists, healthcare professionals, and pharmaceutical scientists while advancing pharmaceutical knowledge. Guiding principles are personal integrity, respect for humanity and human diversity, and professionalism.

## Contacts

### Administration

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## Degrees/Programs Offered

The College of Pharmacy and Pharmaceutical Sciences (CPPS) prepares students for careers in the pharmaceutical sciences and the profession of pharmacy. Those who do not seek professional licensure may work in the pharmaceutical industry, at a university, in regulatory affairs, or other healthcare fields. Those who enter the profession of pharmacy provide direct patient care while working with other healthcare professionals in a variety of practice settings.

The curriculum as outlined in the current catalog is subject to modifications with immediate implementation to keep pace with changing trends in pharmaceutical education and in accordance with accreditation standards. Pre-Professional and Professional division curricular requirements for the degree programs will be those listed in the catalog for the years in which the student enters the respective division. The CPPS reserves the right to change its policies and procedures at any time. These changes will be binding on the date they are approved by faculty action.

## DOCTOR OF PHARMACY - PHARMACY LICENSURE PROGRAM

The program of study leading to pharmacy licensure is the entry-level Doctor of Pharmacy (Pharm.D. (<https://catalog.utoledo.edu/undergraduate/pharmacy-pharmaceutical-sciences/pharmacy-practice/bsps-doctor-pharmacy/>)). Students seeking a degree that will lead to pharmacy licensure will need to complete two years of prerequisite course work prior to matriculation into the professional division of the CPPS. Following the completion of this prerequisite course work, students will apply to the professional division.

### Pharmaceutical Sciences

The CPPS offers a four-year Bachelor of Science in pharmaceutical sciences (B.S.P.S.) degree to prepare students for a variety of careers in the pharmaceutical and biotechnological industries. Students seeking the degree will need to complete two years of prerequisite course work prior to matriculation into the professional division of the CPPS. Following the completion of this prerequisite course work, students will either progress (UT pre-professional students) or apply (transfer students) to the professional division.

- BSPS in Cosmetic Science and Formulation Design (PCOS) (p. 489)
- BSPS in Drug Discovery and Design
- BSPS/MS in Medicinal Chemistry (<https://catalog.utoledo.edu/undergraduate/pharmacy-pharmaceutical-sciences/medicinal-biological-chemistry/bsps-medicinal-chemistry/>)
- BSPS/MS in Pharmacology Toxicology (p. 501)
- Cosmetic Science Minor (p. 495)

### Pharmacy Graduate Degree Programs

The CPPS offers several graduate degrees in the pharmaceutical sciences:

- Master of Science in Pharmaceutical Sciences degree with program options in: Pharmacology/Toxicology, Industrial Pharmacy, and Health Outcomes and Socioeconomic Sciences
- Master of Science in Medicinal Chemistry
- Doctor of Philosophy in Experimental Therapeutics
- Doctor of Philosophy in Medicinal Chemistry

Students should refer to the Graduate catalog (<https://catalog.utoledo.edu/graduate/>) and contact the CPPS for admission and curricular requirements.

### Accreditation

The College of Pharmacy and Pharmaceutical Sciences holds membership in the American Association of Colleges of Pharmacy, and is recognized as an institution in good standing by the Ohio State Board of Pharmacy.

The Doctor of Pharmacy program is accredited by the Accreditation Council for Pharmacy Education (<https://www.acpe-accredit.org/>) (ACPE).

## Entrance into the Professional Division Programs

There are many avenues to enter the programs within the professional division. Please be sure to follow the instructions for the specific program and year in which you will enter the professional division. Contact a pre-pharmacy division advisor for guidance as needed. The only pharmacy courses a pre-pharmacy student is permitted to take through the CPPS, until final admission to the professional division is achieved, are the following:

Code	Title	Hours
PHPR 1000	Orientation	1
PHPR 2000	Introduction to Pharmacy and Pharmaceutical Sciences	1
PHPR 2040	Introduction to Cosmetic Science	1
PHCL 2220	Drugs, Medicine And Society	3
PHCL 2600	Functional Anatomy And Pathophysiology I	4
PHCL 2610	Introductory Physiology	3
PHCL 2620	Functional Anatomy And Pathophysiology II	4
PHCL 2900	Pharmacology Research Introduction	1-3
MBC 2960	Undergraduate Research	1-6

## General Criteria for Progression to the Professional Division of the BSPS Program

Eligible UT or transfer students may progress directly into the professional division of the BSPS program. Students interested in declaring a major and requesting a progression review should contact the Office of Student Affairs for details.

For final progression into the professional division, the following courses (or their equivalents) must be successfully completed:

Code	Title	Hours
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance <sup>1</sup>	1
CHEM 1230	General Chemistry I	4
CHEM 1240	General Chemistry II	4
CHEM 1280	General Chemistry Lab I <sup>1</sup>	1
CHEM 1290	General Chemistry Lab II <sup>1</sup>	1
CHEM 2410	Organic Chemistry I	3
CHEM 2420	Organic Chemistry II <sup>1</sup>	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors <sup>1</sup>	1
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors <sup>1</sup>	1
MATH 1850	Single Variable Calculus I	4
	or MATH 1750 Calculus For The Life Sciences With Applications I and MATH 1760	
PHCL 2610	Introductory Physiology	3

PHYS 1750	Introduction To Physics <sup>1</sup>	4
ENGL 1110	College Composition I <sup>1</sup>	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse <sup>1</sup>	3

Students must also have a minimum cumulative grade point average (GPA) of 2.5. Students with a cumulative GPA  $\leq 2.5$  will be reviewed by program administrators. Decisions will be made to admit, to admit conditionally, or to deny admission until the minimum GPA is achieved.

Under some circumstances, students will be permitted to register for P1 year courses even if they did not complete English Composition II, Organic Chemistry Laboratory I and/or II, or Introduction to Physics. Such requests will require review by program administrators. These courses must subsequently be completed in the professional division prior to graduation.

## Honors Program

The College of Pharmacy and Pharmaceutical Sciences (CPPS) offers a College Honors Program for eligible students in all its undergraduate programs. Highly qualified students entering the University in the CPPS will be considered for entry into honors courses and honors sections of courses offered throughout the undergraduate curriculum after submission of their honors application. During the first two years of study, the CPPS offers courses that orient the student toward the profession of pharmacy and the pharmaceutical sciences. Many honors students take a majority of their honors course work (required and elective courses) during the first two years of the curriculum.

A variety of required and elective courses also are offered with honors sections or Honors Learning Contracts in the professional division. A specific honors seminar and an honors thesis course are required to fulfill the requirements for graduation with college honors. These courses also can fulfill requirements for electives within the major.

The Bachelor of Science in Pharmaceutical Sciences with College Honors is attainable by all students who follow the Blue Track (Gold optional) (<https://www.utoledo.edu/honors/curriculum.html>) and meet the following criteria:

- Cumulative GPA of at least 3.3.
- Completion of at least 27 semester hours of honors course work with a grade of C or better. Required courses included in this criterion are:
  - 1) HON 1010 – Ideas and Society (Humanities requirement)
  - 2) HON 2010 – Multicultural Toledo (U.S. Diversity and Social Sciences requirement)
  - 3) HON 3010 – Community Engagement.
- Other honors credit hours can be fulfilled by coursework in any college or department (except for the thesis and seminar, which must be completed in the CPPS).
- Fulfillment of Departmental Honors described below.

Additionally, any CPPS student may be considered for Departmental Honors in Medicinal & Biological Chemistry, Pharmacology & Experimental Therapeutics, or Pharmacy Practice by meeting the following requirements in the professional division:

- Cumulative GPA of at least 3.2
- Completion of 8 credit hours of Honors work in one department. This includes 4-5 hours of Honors Thesis (4 hours minimum) and 1-3 hours of Honors Seminar (1 hour minimum). To meet the 8-hour total if needed, an additional honors course in the chosen department (MBC, PHCL, PPHR) may be taken. This can be done by taking a specific Honors section of the course or by filing an Honors contract with your faculty in the first 2 weeks of the semester.
  - Honors Thesis MBC, PHCL, or PPHR 4960
  - Honors Seminar MBC, PHCL, or PPHR 4900
- Completion of an acceptable written thesis under the direction of a thesis faculty advisor. The department of the faculty mentor determines the department of honors designation.

## Student Responsibilities

### Academic and Conduct Policies

The CPPS adheres to all The University of Toledo policies and procedures. Please refer to the UT Policy web site for additional information on academic and conduct policies governing all students enrolled at the University. In any case in which University, college and/or departmental policies conflict, the most stringent policy applies, unless waived by the college. Students should consult with the college for a complete listing of all policies and procedures specifically related to the CPPS.

Refer to the University Undergraduate Academic Policies (<http://www.utoledo.edu/policies/>) that apply to all students.

### Attendance Requirements

Students in a professional program, as responsible individuals, are expected to attend all class meetings. The maximum number of permissible absences in a course is at the discretion of the individual faculty member. The penalty for excessive absences will be determined by the faculty member in accordance with the University's Missed Class Policy.

### Withdrawal, GPA Recalculation and Audit Policies

Refer to the University General Academic Policies for Withdrawal, GPA Recalculation and Audit policies that apply to all students. Withdrawal from an experiential course for which a final grade has already been determined will not be permitted.

### PharmD IN-COURSE REMEDIATION Procedure

#### (A) Remediation Philosophy

Remediation is a process which corrects an academic deficiency. It helps students re-engage with course content and achieve academic competency to progress in the program in a timely manner. Remediation is a sequence of events, beyond the standard course curriculum, that are designed to bring underperforming students to a level of competency expected of students at the conclusion of a course. The process of

remediation should provide opportunities for students to develop and demonstrate required knowledge, skills, and/or attitudes through self-directed learning and purposeful interactions with faculty. Both student and faculty should be active participants in the remediation process. Remediation is a privilege that is to be earned by the student through demonstrated attendance and active participation throughout the course. Remediation procedures are not intended to correct grade sanctions due to academic dishonesty or plagiarism.

(B) Procedure statement

Each didactic course syllabus in the Doctor of Pharmacy program at The University of Toledo College of Pharmacy and Pharmaceutical Sciences must include a statement (or section) that clearly states the opportunities and procedure for remediation within the course (in-course remediation). This procedure should be implemented by the course faculty.

(1) In-Course Remediation

In-course remediation opportunities may include exams, assignments, or other activities offered to the student during the semester in which the course is taken **or up to 4 weeks after the first Tuesday following the end of finals week for the semester in which the class was originally taken, per the discretion of the course coordinator.**

(a) **Remediation of Individual Assignments and Examinations:**

Although limits may be placed on the remediation grade for individual assignments and examinations, the need to remediate an assignment or examination does not automatically limit the overall course grade.

(b) **Remediation of the Overall Course Grade:** Opportunity for in-course remediation assessments for the overall course grade must be available and outlined in the syllabus for students that earn course grades of C-, D+, D or D-. The in-course remediation procedure related to overall course grade must clearly state the 1) qualification criteria, 2) remediation process, 3) remediation grading, and 4) maximum remediation attempts. The final grade for students who successfully remediate a course will be no higher than a "C." Upon completion of the in-course remediation assessment, the final course grade must be submitted **within 4 weeks after the first Tuesday following the end of finals week for the semester in which the class was originally taken.** If the student does not successfully complete the remediation assessment(s), the student may be eligible for post-course remediation, if available, based on qualifications defined in the post-course remediation procedure. If post-course remediation is not available, the student must retake the course in its entirety at the next offering, if eligible based on academic standing.

Students with a grade of "C" or better are not eligible to use remediation to improve their grade in a course.

(C) Purpose of procedure: Provide procedure for in-course remediation and remediation planning

(D) Scope: This procedure applies to all students in the Doctor of Pharmacy Program of the College of Pharmacy and Pharmaceutical Sciences. Experiential courses are excluded from this procedure.

(E) Procedure: Each course coordinator should develop an appropriate procedure for in-course remediation opportunities and provide it within the course syllabus. Qualifications and procedures for in-course remediation, including number of assessment attempts, are left to the discretion of the course coordinator.

(1) Remediation assessment

(a) All assessments should be designed to allow the student to demonstrate competency in areas where they previously failed to meet required levels of knowledge, skills and/or attitudes. The assessment format can vary and may include one or more of the following: written or computerized assessments, cumulative evaluation, presentation or other forms of assessment.

(b) Students who participate in in-course remediation activities are expected to use all available resources which may include course materials on Blackboard, lecture recordings, and the use of tutors, when available, to revisit course material.

## PharmD POST-COURSE REMEDIATION Procedure

(A) Remediation Philosophy

Remediation is a process which corrects an academic deficiency. It helps students re-engage with course content and achieve academic competency in order to allow them to progress academically in a timely manner. Remediation is a sequence of events, beyond the standard course curriculum, that are designed to bring underperforming students to a level of competency expected of students at the conclusion of a course. The process of remediation should provide opportunities for students to develop and demonstrate required knowledge, skills, and/or attitudes through self-directed learning and purposeful interactions with faculty. Both student and faculty should be active participants in the remediation process. Remediation is a privilege that is to be earned by the student through demonstrated attendance and active participation throughout the course. Remediation procedures are not intended to correct grades sanctions due to academic dishonesty or plagiarism.

(B) Procedure statement

Students may be eligible for post-course remediation if they 1) earn a course grade of C-, D+, D, or D- after unsuccessful completion of in-course remediation, or 2) earn a grade of F in a course. Opportunities to remediate the entire laboratory component of a laboratory/lecture course are not available.

(1) Post-course Remediation

Post-course remediation is reserved for students who have previously attempted completion of a required course. The repetition will occur during the following Summer semester in an alternative format to the usual course offering. Students who earn a grade of C-, D+, D, D- or F

in more than one course in a semester or more than two courses in an academic year (Fall, Spring) are not eligible for post-course remediation.

(C) Purpose of procedure: Provide procedure for course remediation and remediation planning

(D) Scope: This procedure applies to all students in the Doctor of Pharmacy Program of the College of Pharmacy and Pharmaceutical Sciences. Experiential courses are excluded from this procedure.

(E) Procedure: A statement must be provided in course syllabi indicating that post-course remediation is available at the discretion of college administration, depending on the availability of faculty and resources.

(1) Post-Course Remediation Qualification Determination

(a) Eligible students must have:

- (i) sought help and followed advice from course faculty and advisors
- (ii) completed all coursework
- (iii) adhered to all academic and professional conduct codes

(b) Verification of eligibility will be determined by course faculty in collaboration with the Associate Dean for Academic Affairs.

(2) Post-course Remediation Process:

(a) Students must first submit a reflection to the Associate Dean for Academic Affairs, no longer than one page in length, by **January 20th** (Fall semester courses) or **May 20th** (Spring semester courses) which includes:

- (i) the reasons behind the need for remediation (i.e., lack of understanding of course content, poor study habits, personal issues, etc.)
- (ii) the steps taken to address the issues and what has been learned from these efforts
- (iii) the specific and realistic steps that are planned to improve future performance, including any resources needed to do so

(b) Students are responsible for initiating the **Remediation Plan Agreement Form** (to be filled out in collaboration with course faculty and the Associate Dean for Academic Affairs). The Remediation Plan Agreement Form includes:

- (i) The remediation teaching/learning methods that will be used for guidance (e.g., tutoring, review of online lectures, review of course materials on Blackboard).
- (ii) Articulation of the scope of the remediation content.

(iii) The number of times and/or hours the student is to meet with the faculty.

(iv) A list of all assignments and activities the student must complete (e.g., reviewing examinations, reviewing captured lectures, summarizing lecture notes, completing extra assignments, etc.)

(v) The method in which the student's competency will be assessed.

(vi) The timeline in which assessments will occur and when the final assessment will be complete.

(vii) Signatures from both the student and the remediation faculty affirming the plan.

(3) Students who remediate are expected to utilize all available resources to revisit course material.

(4) Post-course Remediation Timing: Post-course remediation will be offered during the Summer semester immediately following the unsuccessful attempt to pass the original course. Remediation must be completed prior to the start of course(s) which require the prerequisite material or when the failed course is offered again (whichever comes first). The remediation instructor must email the Associate Dean for Academic Affairs and the Director of Student Services for the Professional Division with the results of the remediation.

(5) Student Responsibility: It is the student's responsibility to: 1) obtain their course grade, 2) submit a reflection, 3) initiate the Remediation Plan Agreement Form, and 4) inform the course coordinator of intent to remediate within the course procedure's stated timeframe of notification.

## Technology Requirements

Specific computer hardware/mobile devices and software are required of CPPS students and are described in the Student Handbook.

## Personal Fitness

The emotional and psychological stability of those practicing or preparing to practice in pharmacy is considered to be very important for the proper performance of professional responsibility. The CPPS recognizes that if a student exhibits behavior suggesting an emotional or psychological concern bearing a reasonable relation to that student's ability to function competently in health-care delivery systems, experiential education, and professional employment, such behavior may present a hazard not only to the student, but also to patients, coworkers and clients. If any behavior pattern provides reason to believe that a student's psychological or emotional state may have rendered that student incompetent or unsafe, the Associate Dean of Academic Affairs shall meet with that student and attempt to resolve the situation by referral to the University Health Service, University Counseling Center and/or withdrawal from the pharmacy program.

## Ethical Responsibility

The most serious offense with which pharmacy students may become involved is the misuse of and/or dependence upon dangerous drugs. The CPPS views the admitted or proven personal abuse of such drugs, their transmittal or sale to other individuals, or the use of drug documents to illegally obtain controlled or legend drugs as unprofessional conduct, which may result in dismissal from the CPPS. In addition, boards of pharmacy may revoke the internship license and/or deny licensure for various drug offenses.

## Appeal Procedures for Academic Performance and Degree Progression for CPPS

### APPEAL PROCEDURE FOR ACADEMIC AND DEGREE PROGRESSION STATEMENT AND PURPOSE

The College of Pharmacy and Pharmaceutical Sciences recognizes a student's right to due process. This procedure details how policies set forth by the University (Academic Grievance Policy #3364-71-05 and Graduate Student Academic Grievance Policy #3364-77-02) are implemented by the College of Pharmacy and Pharmaceutical Sciences to provide due process to Doctor of Pharmacy students. The Student Progress Committee reviews and administers College of Pharmacy and Pharmaceutical Sciences Academic Performance Standards for all Doctor of Pharmacy students. A student may appeal the implementation of the College of Pharmacy and Pharmaceutical Sciences academic policy related to progression delay, suspension or dismissal from the College and/or University.

Appeal is limited to academic issues based on the following:

- A claim that the Academic Performance review and ruling process was not conducted as required by the Academic Performance Standard Procedures.
- A claim that the sanction imposed is excessive for the academic performance issue.
- New information has become available that was not available at the time of the original decision.

### PENDENCY OF ACTION

Implementation of an academic dismissal of a student from the Doctor of Pharmacy program and/or the College of Pharmacy and Pharmaceutical Sciences will be immediate unless a student has initiated the appeal process prior to the start of the subsequent semester (including summer semesters). For students seeking immediate appeal, dismissal will be deferred until all the due process hearings and time for appeals made by the student have been exhausted. Students will be allowed to continue in College of Pharmacy and Pharmaceutical Sciences didactic coursework pending the ruling on appeal(s). Students will **not** be permitted to continue in experiential education on-site experiences during the appeal process. Assignments/Exams may be completed but will not be credited unless the appeal is accepted. If the appeal is denied, the student will be immediately administratively removed from registered coursework.

Please note, the Dean of the College of Pharmacy and Pharmaceutical Sciences or the Dean's designee may impose immediate removal or restrictions on the student if the alleged conduct in any way concerns patient or public safety (including faculty, staff, and/or other students).

## PROCEDURES

### Appeal to the Student Progress Committee

- A student may appeal, in writing, the implementation of College of Pharmacy and Pharmaceutical Sciences procedure related to progression delay, suspension or dismissal from the College and/or University.
- The appeal letter should be submitted to the Student Progress Committee Chair.
- The letter of petition must be written in adherence to the business letter format and must include the student's name and Rocket number, phone number, current mailing address, date, semester, decision(s) in dispute (progression delay, suspension, or dismissal), the specific issue regarding the decision(s) in dispute, and the student's statement of appeal that specifically identifies which of the three bases for appeal are being raised.
- A student has up to one calendar year from the date on communication regarding academic sanctions to submit the petition of appeal.
- The Student Progress Committee will provide notification to the student via email and letter of the decision on the appeal within ten (10) business days of the receipt of the appeal petition from the student, unless circumstances warrant additional time for review, with sufficient notice provided to the student.
- If the appeal is accepted, the college will determine the conditions under which the student will be permitted to re-enroll.
- If the appeal is accepted and the student does not subsequently meet expectation for academic progression, appropriate academic sanction will be imposed per the College of Pharmacy and Pharmaceutical Sciences procedure.
- If the appeal is not accepted by the Student Progress Committee, the student may appeal the decision to the Dean of the College of Pharmacy and Pharmaceutical Sciences.

### Appeal Process to the Dean

- To appeal Student Progress Committee rulings related to progression delay, suspension, or dismissal, the student shall formally dispute the decision in writing to the Dean of the College of Pharmacy and Pharmaceutical Sciences.
- The appeal should be written per the guidelines stated above.
- A hard copy and email copy of the written request must be received by the Office of the Dean within ten (10) business days following email notification of the Student Progress Committee decision, or any further right to appeal is waived.
- The Dean will review all applicable evidence from the student, the Student Progress Committee, and any other requested information.
- After completing such review, the Dean may ask for a meeting with the student.
- The Dean will provide to the student a written notification of the decision on the appeal within ten (10) business days of the receipt of the appeal petition from the student, unless circumstances warrant

additional time for review, with sufficient notice provided to the student.

- The decision of the Dean is final and without appeal.

## Student Code of Professional Conduct

### Purpose

The Student Code of Professional Conduct for the College of Pharmacy and Pharmaceutical Sciences gives general notice of prohibited conduct and of the sanctions to be imposed if such conduct occurs. The Student Code of Professional Conduct should be read broadly and is not designed to define misconduct in exhaustive terms. The Student Code of Professional Conduct specifies the rights and responsibilities of the students, student organizations, the college, and the rights of other parties to the procedure.

Students and student organizations are required to engage in responsible social and professional conduct that reflects credit upon the College of Pharmacy and Pharmaceutical Sciences community and to model good citizenship in any community. Actions by students or student organizations, which interfere with the orderly functions of the college, or actions, which endanger the health or safety of members of the college community, will not be tolerated.

### Delegation of Authority

The Dean of the College of Pharmacy and Pharmaceutical Sciences or designee shall administer and implement this procedure, including the promulgation of the standards of conduct, to be published and distributed as "The Student Code of Professional Conduct," with procedures and standards governing student conduct at the College of Pharmacy and Pharmaceutical Sciences. The Student Progress Committee is authorized to hear each matter and provide a final decision as to whether the code has been violated and a sanction if warranted. The Dean of the College will assure that the sanction is implemented.

### Application

This procedure, along with the UToledo Student Code of Conduct, (see [http://www.utoledo.edu/policies/main\\_campus/student\\_life/pdfs/3364\\_30\\_04\\_Student\\_code\\_of\\_conduct.pdf](http://www.utoledo.edu/policies/main_campus/student_life/pdfs/3364_30_04_Student_code_of_conduct.pdf)), applies to all students and student organizations of the college. In areas of overlap, this procedure supersedes the UToledo Student Code of Conduct.

## Licensure Requirement

A valid Ohio pharmacy intern license is required of all students entering the professional division of the Pharm.D. program. Any P1 student who does not obtain a valid Ohio pharmacy intern license by December 31st of the P1 year will be withdrawn from all spring semester courses and will not be allowed to register for or take classes until a valid Ohio pharmacy intern license is obtained. Depending upon the circumstances and length of time needed to resolve the issue, failure to obtain a valid Ohio pharmacy intern license may result in forfeiture of the student's seat in the P1 class, necessitating reapplication to the professional division.

In addition any student in the professional division of the Pharm.D. program who does not annually renew his/her license before September 15th will be withdrawn from all courses effective immediately. Depending

upon the circumstances and length of time needed to resolve the issue, failure to renew an Ohio pharmacy intern license may result in forfeiture of the student's seat in the Pharm.D. class, necessitating reapplication to the professional division.

## Academic Performance Standards

Please refer to the **UToledo Policy web site** (<http://www.utoledo.edu/policies/>) for additional information on academic policies.

**The Academic Performance Standards as outlined in the current catalog are subject to modifications with immediate implementation to keep pace with changing trends in pharmaceutical education and in accordance with accreditation standards.**

### Requirements for Academic Progression -- Pre-Professional Program Policies

#### 1. Good Academic Standing

- A minimum cumulative UToledo grade point average of 2.0.
- An undergraduate student must be in good academic standing to be eligible to graduate from UToledo.
- An undergraduate student must be in good academic standing to be an officer in a College of Pharmacy and Pharmaceutical Sciences student organization.

#### 2. Academic Probation

- A student will be placed on academic probation for earning a cumulative UToledo GPA < 2.0.
- A student will remain on academic probation until their cumulative GPA is raised to 2.0 or greater.
- A student may remain enrolled as long as they earn a term GPA of 2.0 or greater. Earning a term GPA < 2.0 while on probation may lead to additional action.
- A student on academic probation may have additional requirements placed on them by the college in order to register for courses during subsequent semesters. These requirements may include but are not limited to: limits on credit hour enrollment or course registration, scheduled meetings with academic advisors and/or success coaches, regular attendance in courses, and utilization of University tutoring or other student success initiatives and resources.

#### 3. Suspension

- A student on academic probation who earns a term GPA of < 2.00 may be suspended from the University for the subsequent semester(s) (excluding Summer) if their cumulative UToledo GPA is as follows:
  - Less than 1.0 over 10-19 cumulative UToledo GPA hours
  - Less than 1.5 over 20-29 cumulative UToledo GPA hours
  - Less than 1.7 over 30-39 cumulative UToledo GPA hours
  - Less than 1.8 over 40-49 cumulative UToledo GPA hours
  - Less than 1.9 over 50-59 cumulative UToledo GPA hours.
  - Less than 2.0 over 60 cumulative UToledo GPA hours.



- A student must be given a minimum of one semester probation before being subject to suspension.
- Suspension is from the University
- A student may receive up to three (3) suspensions, with the suspended time as follows:
  - First suspension = one (1) semester (excluding summer)
  - Second suspension = one (1) academic year
  - Third suspension = three (3) academic years

#### 4. Readmission from Suspension

- A student serving suspension has the right to petition for readmission to the College of Pharmacy and Pharmaceutical Sciences.
- A student must request readmission via a written petition to the Associate Dean of Student Affairs at least 30 days prior to the start of the semester of desired return.
- A student no longer desiring to pursue a degree offered by the college may seek readmission to the University in another college for which they are eligible. The student should follow readmission procedures for the college of interest.
- A student returning to the college from suspension will be on academic probation and must earn a term GPA  $\geq 2.0$  until their cum UToledo GPA  $\geq 2.0$  or they are subject to a second (or third) suspension.
- A student, on returning from suspension to the college, may have additional requirements placed on them by the College of Pharmacy and Pharmaceutical Sciences in order to register for courses during subsequent semesters. These requirements may include, but are not limited to: limits on credit hour enrollment or course registration, scheduled meetings with academic advisers and/or success coaches, regular attendance in courses, and utilization of University tutoring or other student success initiatives and resources.
- If a suspended student takes courses at another institution while suspended from the University, the student will be subject to the policies and requirements for Transfer Students (see college catalog for details).

### Requirements for Academic Progression – Professional Division Students in the Bachelor of Science in Pharmaceutical Sciences program (Pharmacology/Toxicology, Medicinal and Biological Chemistry, Cosmetic Sciences and Formulation Design, Pharmaceutics, and Pharmacy Administration) Policies

#### 1. Good Academic Standing

- The College of Pharmacy and Pharmaceutical Sciences defines “good academic standing” for professional division students in the Bachelor of Science in Pharmaceutical Sciences (B.S.P.S.) program (Cosmetic Science and Formulation Design, Medicinal and Biological Chemistry, Pharmaceutics, Pharmacology/ Toxicology, and Pharmacy Administration) in the following manner: a minimum term and cumulative GPA of 2.00.
- To hold an office in a college organization or represent the college, a student enrolled must be in “good academic standing.”

#### 2. Academic Probation

- A student will be placed on Academic Probation for the following:
  - Earning a semester or cumulative GPA  $< 2.00$ .
  - Earning a semester GPA  $< 1.00$ ; this performance may lead to suspension (see section on suspension below) from the University without a preliminary probationary semester.
- Any student on Academic Probation for two of three consecutive semesters in attendance may be suspended (see section on suspension below) from the University.
- Students will remain on Academic Probation until the cumulative GPA is raised to 2.00 or greater.

#### 3. Suspension

- Any student on academic probation who earns a term or cumulative GPA of  $< 2.00$  or earns a grade of F may be suspended for a period of one (1) semester, not including summer semester.
- Any student who earns a cumulative GPA  $< 1.00$  may be suspended for a period of one (1) semester, not including summer semester.

#### 4. Readmission from Suspension

- Students serving suspension have the right to petition for readmission to the college.
- A student must request readmission via a written petition to the Associate Dean of Student Affairs at least 30 days prior to the start of the semester of desired return.

#### 5. GPA Recalculation

- GPA recalculation for professional division courses for B.S.P.S. non-Pharm.D. students will be allowed, in accordance with the policies of The University of Toledo.

### Requirements for Academic Progression – Doctor of Pharmacy Program

#### 1. Good Academic Standing

- The College of Pharmacy and Pharmaceutical Sciences defines “good academic standing” for students enrolled in the Doctor of Pharmacy (Pharm.D.) Program in the following manner:
  - Maintaining minimum pharmacy required course cumulative GPA  $\geq 2.75$
  - Earning grade of C or better in all pharmacy required courses
  - Fulfilling any applicable Pharm.D. Program Requirements as outlined in The University of Toledo College of Pharmacy and Pharmaceutical Sciences Doctor of Pharmacy Student Handbook
- A grade below a C in any pharmacy required course is unsatisfactory and will not be considered a passing grade for the course in the Pharm.D. curriculum (i.e., courses for which grades of less than a C are earned must be repeated).

- To hold an office in a college organization or represent the college, a student enrolled must be in “good academic standing.”

## 2. Academic Progression, Matriculation, and Graduation

- To progress to the subsequent class year (P1 to P2, P2 to P3, P3 to P4), the student must:
  - Earn a pharmacy required course cum GPA  $\geq 2.75$
  - Earn a grade of C or better in all pharmacy required courses
  - Fulfill any applicable Pharm.D. Program Requirements as outlined in The University of Toledo College of Pharmacy and Pharmaceutical Sciences Doctor of Pharmacy Student Handbook
- Students failing to achieve these three requirements will not progress, matriculate, and/or graduate and must do one of the following:
  - Retake pharmacy required courses to demonstrate an improved aptitude for the material and seek progression or matriculation with the next year’s class.
  - If eligible, graduate with a B.S.P.S. degree. However, doing so would prevent the student from taking/retaking additional undergraduate courses toward achieving a Pharm.D. degree, thus ending any opportunity to further pursue a Pharm.D. degree at The University of Toledo.
  - If eligible, consider transferring to one of the five tracks (Cosmetic Science and Formulation Design, Medicinal and Biological Chemistry, Pharmaceutics, Pharmacology/ Toxicology, or Pharmacy Administration) of the B.S.P.S. program.
  - If eligible, change colleges within The University of Toledo or transfer to another institution.

## 3. Progression Delay and Probation

- The following academic performance will lead to Progression Delay:
  - Earning a pharmacy required course cum GPA  $< 2.75$ .
  - Earning a grade less than a C in a pharmacy required course.
  - Failure to fulfill applicable Pharm.D. Program Requirements as outlined in The University of Toledo College of Pharmacy and Pharmaceutical Sciences Doctor of Pharmacy Student Handbook.
- The following performance on experiential rotation will lead to Probation:
  - Failure to pass a pharmacy practice experience or dismissal from a pharmacy practice experience.
    - A student will remain on probation until successful completion of all required experiential rotations.

## 4. Dismissal

- The following academic performance or circumstances will lead to dismissal from the Pharm.D. Program:
  - Earning a pharmacy required course term GPA  $< 2.00$
  - Earning a pharmacy required course cumulative GPA  $< 2.25$  (excluding the Fall P1 semester).

- Earning a grade  $< C$  in a repeated pharmacy required course.
- Repeated non-compliance in a given semester, or over subsequent semesters, with Pharm.D. Program Requirements as outlined in The University of Toledo College of Pharmacy and Pharmaceutical Sciences Doctor of Pharmacy Student Handbook.
- Student no longer able to complete the program in the required six (6) calendar year time period from the initial enrollment semester – student’s P1 Fall semester. (See Procedure SPC-1 Time to Doctor of Pharmacy Program Completion Procedure).
- If dismissed from the Pharm.D. Program, the student may continue to earn a B.S.P.S. degree if they have not already done so or transfer to another College/Program within the University as eligible.
- The following experiential performance may make you eligible for dismissal:
  - Any student **on probation** who fails to pass a pharmacy practice experience or is dismissed from a pharmacy practice experience will be immediately removed from the experiential program, receive a review by the Student Progress Committee, and may be subject to action from the committee up to and including dismissal from the Pharm.D. program.
- Pharmacy Required Course GPA Calculation:
  - The pharmacy required course GPA will consist of all required professional program pharmacy core-curriculum undergraduate and post-baccalaureate coursework.
  - Pharmacy required courses may not be repeated more than once.
  - If a course is repeated, the grade earned for the repeated attempt will be substituted for the previous grade for purposes of calculating the pharmacy required course cumulative GPA, regardless of the University grade recalculation policy.
  - A repeated pharmacy required course grade, in which a student earned a grade of B or better on the first attempt, will not be included in the pharmacy required course GPA.
  - Neither undergraduate nor post-baccalaureate elective coursework will be counted towards pharmacy required course GPA.
  - The above GPA calculation procedures apply to student progression, graduation clearance, and/or dismissal in the PharmD program only.

## 5. Appeal Process

- To appeal a progression delay, suspension, or dismissal, the student shall follow the process set forth by the College of Pharmacy and Pharmaceutical Sciences Appeal Procedure (Procedure SPC-7).

## 6. Pharmacy Required Courses

To determine the courses which will be used in the calculation of the pharmacy required course cumulative GPA and for which a grade of C or

better is required, please refer to the College Catalog in place at the time of your first year of enrollment in the Pharm.D. Program.

Please note that the requirements for good academic standing in the Pharm.D. program are more stringent than those set forth by the University in the policy. Also, please note that GPA recalculation and grade deletion as allowed in University policy 3364-71-07 does not apply to the Pharm.D. required course GPA.

Code	Title	Hours
Pharmacy Required Courses (used in calculation of pharmacy required course cumulative GPA)		
*Required P1-P3 Level Courses		
MBC 3310/5310	Medicinal Chemistry I: Drug Action And Design	2
MBC 3550/5550	Physiological Chemistry I: Structure And Function Of Biological Macromolecules	3
PHCL 3700/5700	Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology	3
PHPR 3000/5020	Pharmaceutics and Dosage Form Design	5
PHPR 3050/5050	Interprofessional Approach to Patient Care	1
PHPR 3300/5320	Commonly Prescribed Meds and Med Term 1	1
PHPR 3450/5450	Pharmacy Skills Development-1	2
PHPR 3920/5920	Introductory Pharmacy Practice Experience I	1
MBC 3552/5552	Physiological Chemistry II Cellular Metabolism and Homeostasis	2
MBC 3860/5860	Microbiology for Pharmaceutical Professionals	2
PHPR 3470	Pharmacokinetics (Entering P1 year 2020 and before)	3
PHCL 4160/6160	Biopharmaceutics & Pharmacokinetics (Entering P1 year 2021 and after)	3
PHM 3000/5000	Integrated Pharmaceutical and Clinical Sciences 1	6
PHPR 3250/5250	Introduction to Self Care	1
PHPR 3310/5310	Introduction to Pharmacy Law	1
PHPR 3460/5460	Pharmacy Skills Development-2	2
PHPR 3930/5930	Introductory Pharmacy Practice Experience 2	1
PHM 4000/6500	Integrated Pharmaceutical and Clinical Sciences 2	8
PHPR 4220/6200	Patient Centered Care	2
PHPR 4300/6390	Commonly Prescribed Meds and Med Term II	1
PHPR 4350/6350	Pharmacy Skills Development - 3	2
PHPR 4530/6540	Evidence Based Medicine 1	3
PHPR 4920/6930	Introductory Pharmacy Practice Experience 3	1
PHM 4200/6600	Integrated Pharmaceutical and Clinical Sciences 3	8
PHPR 4270/6330	Health Systems	1.5
PHPR 4360/6360	Pharmacy Skills Development - 4	2
PHPR 4540/6560	Evidence Based Medicine 2	2
PHPR 4930/6970	Introductory Pharmacy Practice Experience 4	1
PHM 6000	Integrated Pharmaceutical and Clinical Sciences 4	7
PHPR 6000	Drug Information Seminar	2
PHPR 6220	Pharmacoeconomics and Outcomes Research	1
PHPR 6460	Pharmacy Skills Development - 5	2
PHPR 6920	Introductory Pharmacy Practice Experience 5	1

PHM 6200	Integrated Pharmaceutical and Clinical Sciences 5	5
PHPR 6250	Advanced Self Care	3
PHPR 6270	Business Aspects of Pharmacy	2
PHPR 6310	Jurisprudence and Ethics	1
PHPR 6470	Pharmacy Skills Development - 6	2

**NOTE:** PharmD graduate electives are not PharmD core-curriculum courses and therefore are not used in calculation of pharmacy required course cumulative GPA.

## Experiential Performance Standards

The experiential series allows students to gain an appreciation of the role of the pharmacist through visiting actual pharmacy practice sites and participating in direct patient care activities. Throughout the course of the experiential series each student will be required to complete a number of health and regulatory requirements. These regulatory requirements must be originally completed and kept up to date at all times in order to remain in the experiential program. These requirements may include immunizations and other certain health documentation as well as licensures, certifications and background checks.

Specific details regarding the above requirements will be provided to all students upon admission into the Doctor of Pharmacy program and throughout the experiential series. Additional requirements and expectations will be included in the experiential manual. The experiential manual will be made available to all students on an annual basis. Students are responsible for reading, understanding and adhering to all policies and procedures outlined therein.

## Good Standing

The CPPS defines "good academic standing" in the following manner:

- For all pre-professional students, and professional division students in the Bachelor of Science in Pharmaceutical Sciences program (pharmacology/toxicology, medicinal and biological chemistry, pharmaceutics, cosmetic science and formulation design, and pharmacy administration majors): a minimum cumulative GPA of 2.0 and a minimum term GPA of 2.0.
- For students enrolled in the professional division of the Doctor of Pharmacy (Pharm.D.) Program:
  - Maintaining minimum pharmacy required course cumulative GPA  $\geq 2.75$
  - Earning grade of C or better in all pharmacy required courses
  - Fulfilling any applicable Pharm.D. Program Requirements as outlined in The University of Toledo College of Pharmacy and Pharmaceutical Sciences Doctor of Pharmacy Student Handbook

## Time in Program

To ensure provision of the most up-to-date and relevant pharmacy and pharmaceutical sciences education, all Doctor of Pharmacy degree requirements must be completed within six (6) years from the time the student first enrolls in the professional division (P1) of the Doctor of Pharmacy program. An approved leave of absence will justify an extension.

## Student Grievances

### STUDENT COMPLAINTS RELATED TO PHARMD ACCREDITATION STANDARDS

Student complaints specifically related to Accreditation Council for Pharmacy Education (ACPE) standards should be submitted on the appropriate form to the College of Pharmacy and Pharmaceutical Sciences (CPPS) Office of Student Affairs (Wolfe Hall Room 1227 or Frederic and Mary Wolfe Center, Health Education Building, Suite 155) in care of the Associate Dean for Student Affairs. Forms are available in the Office of Student Affairs. A copy of the ACPE standards can be found here: <https://www.utoledo.edu/pharmacy/current/acpestandards.html>. Students can also find the ACPE standards on the ACPE web site. The Associate Dean will meet with the Dean of the College to review the complaint and consult with the student complainant and individuals involved. A formal response will be issued by the Dean.

If the issue is not resolved at the College level, the student complainant can submit the complaint directly to ACPE. In addition, a student may submit a complaint directly to ACPE without submission to the College. See <https://www.acpe-accredit.org/complaints/default.asp> for more information.

### UNDERGRADUATE STUDENT ACADEMIC GRIEVANCE PROCEDURE

Undergraduate student issues or complaints regarding specific courses should follow these steps when pursuing an academic grievance:

- STEP 1:** The student discusses the problem with the faculty member whom the student believes has taken improper action.
- STEP 2:** If resolution is not achieved, the student discusses the problem with the chair of the faculty member's department.
- STEP 3 (optional):** If the student wishes, the student may seek informal counsel from the president of student government.
- STEP 4:** If resolution is still not achieved, the student discusses the problem with the Dean of the college or the college representative responsible for dealing with student academic grievances.
- STEP 5:** If resolution is not achieved at the college level, the student needs to file a petition for academic grievance with the chair of the Student Grievance Council.

See <http://www.utoledo.edu/offices/provost/academicgrievance/undergraduate.html> for UT academic grievance timeframe, the written petition guidelines and contact information for the current Student Grievance Council Chair.

Please refer to the UT Policy web site for additional information on academic policies: <http://www.utoledo.edu/policies/>.

### PHARMD (P1-P4) STUDENT ACADEMIC GRIEVANCE PROCEDURE

To initiate resolution of final course grade grievances, the student shall formally dispute the grade in writing to the faculty member responsible for assigning the grade. The written dispute should include the student's name and Rocket number, date, course number and section, semester, the specific issue in dispute, and the student's request for resolution. The written request should be delivered (email or hard copy) within 7 days

of the grade posting. The faculty member then has 7 days in which to respond in writing (email or hard copy) back to the student.

If resolution is not achieved, the student may forward the written dispute (as described above and with the response of the faculty member) to the chair of the faculty member's department. The student has 7 days in which to appeal to the department chairperson following the receipt of the faculty member response. The department chairperson then has 7 days in which to respond in writing (email or hard copy) back to the student.

If resolution is still not achieved, the student may submit the same written dispute (as outlined above and with the response of the department chairperson) to the CPPS Dean. The student has 7 days in which to appeal to the Dean following the receipt of the department chairperson's response. The Dean then has 7 days in which to respond in writing (email or hard copy) back to the student. The decision of the Dean is final and without appeal.

## Leave of Absence

A student enrolled in the Doctor of Pharmacy program who is in good academic standing or on academic probation (excluding those students eligible for suspension or dismissal from the college) may request a leave of absence (LOA) for up to 12 months. All students approved for a LOA, regardless of the type of LOA, must also request and be approved if they wish to return from the LOA.

To apply for a Leave of Absence (LOA), please complete the application: <https://www.utoledo.edu/pharmacy/current/pdfs/leave-of-absence.pdf>

## Requirements for Undergraduate and Professional Programs of Study

The student is responsible for the correct selection of the program of study each semester and for the fulfillment of the requirements given here. Although advisors will assist wherever possible, the final responsibility rests with the student. The CPPS reserves the right to change its policies and procedures at any time. These changes will be binding on the date they are approved by faculty action. Courses taken at other colleges of pharmacy will not substitute for required professional division courses. The only pharmacy courses a pre-pharmacy student is permitted to take through the CPPS, until final admission to the professional division is achieved, are the following:

Code	Title	Hours
PHPR 1000	Orientation	1
PHPR 2000	Introduction to Pharmacy and Pharmaceutical Sciences	1
PHPR 2040	Introduction to Cosmetic Science	1
PHCL 2220	Drugs, Medicine And Society	3
PHCL 2600	Functional Anatomy And Pathophysiology I	4
PHCL 2610	Introductory Physiology	3
PHCL 2620	Functional Anatomy And Pathophysiology II	4

PHCL 2900	Pharmacology Research Introduction	1-3
MBC 2960	Undergraduate Research	1-6

Only students admitted to the professional division will be allowed to take 3000- or 4000-level courses in the college.

## Degree Requirements

The curriculum as outlined in the current catalog is subject to modifications with immediate implementation to keep pace with changing trends in pharmaceutical education and in accordance with accreditation standards.

## Bachelor of Science in Pharmaceutical Sciences Degree Requirements

In response to the increasing demand for scientists, researchers, and administrators in the pharmaceutical fields, The University of Toledo CPPS offers the Bachelor of Science in Pharmaceutical Sciences (BSPS) degree program. The BSPS degree is a four-year baccalaureate program. Pharmaceutical sciences represent the collective basic sciences that underlie pharmacy. The majors and one minor under this degree include:

- Cosmetic science and formulation design (PCOS) major and minor
- Drug Discovery and Design (DDAD) (welcoming first class into the professional division in Fall 2025)

The BSPS degree is designed for students who wish to pursue careers related to the pharmaceutical industry, pharmaceutical science and research, pharmacy administration and sales, the biomedical industry, the personal products industry, forensic science, as well as health-care administration. It also prepares students to pursue graduate studies or enter professional schools including medicine, dentistry, law, and physician assistant programs.

## General Program Requirements

A minimum of 120 semester hours is required for graduation with all Bachelor of Science in pharmaceutical sciences non-PharmD majors.

## Pre-Pharmacy Division Requirements

In the pre-pharmacy division, the first two years of the BSPS program, students will be broadly trained in the arts, humanities and social sciences – although the natural sciences will receive emphasis. The curriculum of the pre-pharmacy division of the CPPS is similar for the Pharm.D. and the BSPS degrees.

## College of Pharmacy & Pharmaceutical Sciences (CPPS) Pre-Pharmacy (PREP) Curriculum

Applying to Professional Division (P1) for Fall 2018 or after

Course	Title	Hours
<b>First Term</b>		
<b>Fall 1st Year</b>		
PHPR 1000	Orientation <sup>1</sup>	1
MATH 1850	Single Variable Calculus I	4
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1

BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1

**Hours 15**

### Second Term

#### Spring 1st Year

PHCL 2610	Introductory Physiology	3
MATH 2640	Statistics for Applied Science	3
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
ENGL 1110	College Composition I (UT Core Requirement)	3
UT Core Requirement (US Diversity) <sup>2</sup>		3

**Hours 17**

### Third Term

#### Fall 2nd Year

CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
PHYS 1750	Introduction To Physics <sup>1</sup>	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
UT Core Requirement (Social Science) <sup>2</sup>		3

**Hours 14**

### Fourth Term

#### Spring 2nd Year

CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
UT Core Requirement (Social Science) <sup>2</sup>		3
UT Core Requirement (Humanities/Fine Arts) <sup>2</sup>		3
UT Core Requirement (Humanities/Fine Arts) <sup>2</sup>		3
UT Core Requirement (Non-US Culture) <sup>2</sup>		3

**Hours 16**

**Total Hours 62**

<sup>1</sup> Only offered during fall semesters.

<sup>2</sup> If double-dip, PREP courseload reduced by 3 hours. Only one double dip is allowed for the UT Core requirements.

## Bachelor of Science in Pharmaceutical Sciences Professional Division Requirements

In the professional division of the BSPS degree program, the last two years of the program, advanced courses of study and internship experience in each major lead to a unique concentration in the pharmaceutical fields. Requirements can be found under General Criteria for Progression to the Professional Division of the BSPS Program.

## Doctor of Pharmacy (Pharm D)

The program of study leading to pharmacy licensure is the entry-level Doctor of Pharmacy (Pharm.D.). Students seeking a degree that will lead to pharmacy licensure will need to complete two years of prerequisite course work prior to matriculation into the professional division of the College of Pharmacy and Pharmaceutical Sciences (CPPS). Following the completion of the prerequisite coursework, students will apply to the professional division. Admission to the professional division of the college is competitive.

Following admission to the professional division, the entry-level Pharm.D. program students must successfully complete a Bachelor of Science in Pharmaceutical Sciences (BSPS) degree prior to more focused course work in pharmacotherapy and the practice of pharmacy. Students in the entry-level Pharm.D. track who have completed the BSPS degree at The University of Toledo are eligible to matriculate into the last two years of the Pharm.D. program.

To graduate with a Pharm.D. degree, students must meet the current academic performance standards. Only students who successfully complete the Pharm.D. degree will qualify for pharmacy licensure. A total of 129.5 semester hours is required for graduation with the BSPS-Pharm.D. track degree. A total of 69 graduate semester hours is required for graduation with the Pharm.D. degree. The curriculum is outlined below.

## DOCTOR OF PHARMACY/PHARMD (FOR P1 STUDENTS ENTERING IN FALL 2018 AND AFTER) PRE-Pharmacy

First Term		Hours
PHPR 1000	Orientation <sup>1</sup>	1
MATH 1850	Single Variable Calculus I *	4
CHEM 1230	General Chemistry I *	4
CHEM 1280	General Chemistry Lab I	1
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
<b>Hours</b>		<b>15</b>
Second Term		Hours
PHCL 2610	Introductory Physiology	3
MATH 2640	Statistics for Applied Science * <sup>2</sup>	3
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
ENGL 1110	College Composition I	3
Diversity of US <sup>3</sup>		3
<b>Hours</b>		<b>17</b>
Third Term		Hours
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1

PHYS 1750	Introduction To Physics <sup>1</sup>	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Social Sciences Core <sup>3</sup>		3
<b>Hours</b>		<b>14</b>
Fourth Term		Hours
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
Social Sciences Core <sup>3</sup>		3
Arts/Humanities Core <sup>3</sup>		3
Arts/Humanities Core <sup>3</sup>		3
Non-US Diversity <sup>3</sup>		3
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>62</b>

<sup>1</sup> Only offered during Fall semesters.

<sup>2</sup> Not required prior to P1 for BSPS-only applicants.

<sup>3</sup> If double-dip, PREP courseload reduced by 3 hours. Only one double dip is allowed for the UT Core requirements.

\* Students accepted into the College of Pharmacy and Pharmaceutical Sciences should be academically prepared to be placed into MATH 1850 and CHEM 1230. Students placing into a lower math level - MATH 1200, MATH 1320 or MATH 1750 and/or placing into a lower level chemistry - CHEM 1090 (based on students' testing scores) will require additional hours for graduation.

Students should consult their Degree Audit for coursework that fulfills elective course requirements in the General Education/Core area.

## Professional

Fifth Term		Hours
MBC 3310	Medicinal Chemistry I: Drug Action And Design	2
MBC 3550	Physiological Chemistry I: Structure And Function Of Biological Macromolecules	3
PHCL 3700	Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology	3
PHPR 3000	Pharmaceutics and Dosage Form Design	5
PHPR 3050	Interprofessional Approach to Patient Care	1
PHPR 3300	Commonly Prescribed Meds and Med Term 1	1
PHPR 3450	Pharmacy Skills Development-1	2
PHPR 3920	Introductory Pharmacy Practice Experience I	1
<b>Hours</b>		<b>18</b>
Sixth Term		Hours
MBC 3552	Physiological Chemistry II Cellular Metabolism and Homeostasis	2
MBC 3860	Microbiology for Pharmaceutical Professionals	2

PHPR 3250	Introduction to Self Care	1
PHPR 3310	Introduction to Pharmacy Law	1
PHPR 3460	Pharmacy Skills Development-2	2
PHPR 3930	Introductory Pharmacy Practice Experience 2	1
PHM 3000	Integrated Pharmaceutical and Clinical Sciences 1	6
PHCL 4160	Biopharmaceutics & Pharmacokinetics	3

**Hours 18**

**Seventh Term**

PHPR 4220	Patient Centered Care	2
PHPR 4350	Pharmacy Skills Development - 3	2
PHPR 4530	Evidence Based Medicine 1	3
PHPR 4300	Commonly Prescribed Meds and Med Term II	1
PHPR 4920	Introductory Pharmacy Practice Experience 3	1
PHM 4000	Integrated Pharmaceutical and Clinical Sciences 2	8

**Hours 17**

**Eighth Term**

PHPR 4270	Health Systems	1.5
PHPR 4360	Pharmacy Skills Development - 4	2
PHPR 4540	Evidence Based Medicine 2	2
PHPR 4930	Introductory Pharmacy Practice Experience 4	1
PHM 4200	Integrated Pharmaceutical and Clinical Sciences 3	8

**Hours 14.5**

**Total Hours 67.5**

Code	Title	Hours
Pre-Pharmacy		62
Professional		67.5
Total Hours		129.5

Following admission to the professional division, the entry-level Pharm.D. program students will complete a bachelor of science in pharmaceutical sciences degree prior to more focused course work in pharmacotherapy and pharmaceutical care. Students in the entry-level Pharm.D. track who have completed the bachelor of science in pharmaceutical sciences degree at The University of Toledo and meet progression standards are eligible to continue in the Pharm.D. program.

In order to graduate with a Pharm.D. degree, students must meet the current academic performance standards. Only students who successfully complete the Pharm.D. degree will qualify for licensure in the practice of pharmacy. A total of 126.5 semester hours is required for graduation with the bachelor of science in pharmaceutical sciences-Pharm.D. track degree. A total of 69 graduate semester hours is required for graduation with the Pharm.D. degree. The Pharm. D. program is accredited by ACPE and will be revisited for reaccreditation in Fall of 2019.

**GRADUATE PROFESSIONAL DOCTOR OF PHARMACY**

Students must graduate with the BSPS Doctor of Pharmacy prior to beginning the final two years (ninth through thirteenth terms) of the Doctor of Pharmacy program.

<b>Ninth Term</b>		<b>Hours</b>
Institutional IPPEs		

**Hours 0**

**Tenth Term**

PHPR 6000	Drug Information Seminar ((Fall or Spring)) <sup>2</sup>	2
PHPR 6220	Pharmacoeconomics and Outcomes Research	1
PHPR 6460	Pharmacy Skills Development - 5	2
PHPR 6920	Introductory Pharmacy Practice Experience 5	1

Professional Elective<sup>1</sup> 4

PHM 6000	Integrated Pharmaceutical and Clinical Sciences 4	7
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**Hours 17**

**Eleventh Term**

PHPR 6000	Drug Information Seminar ((Fall or Spring)) <sup>2</sup>	-
PHPR 6250	Advanced Self Care <sup>3</sup>	3
PHPR 6270	Business Aspects of Pharmacy	2
PHPR 6310	Jurisprudence and Ethics	1
PHPR 6470	Pharmacy Skills Development - 6	2
PHM 6200	Integrated Pharmaceutical and Clinical Sciences 5	5

Professional Elective<sup>1</sup> 3

**Hours 16**

**Twelfth Term**

PHPR 8940	Clinical Clerkship	4
PHPR 8940	Clinical Clerkship	4
PHPR 8940	Clinical Clerkship	4
PHPR 8940	Clinical Clerkship	4
PHPR 8940	Clinical Clerkship	4

**Hours 20**

**Thirteenth Term**

PHPR 8940	Clinical Clerkship	4
PHPR 8940	Clinical Clerkship	4
PHPR 8940	Clinical Clerkship	4
PHPR 8940	Clinical Clerkship	4

**Hours 16**

**Total Hours 69**

<sup>1</sup> A total of 7 credit hours of Graduate Professional Electives is required.

<sup>2</sup> This course may be taken in Fall or Spring, making the program a total of 69 hours.

<sup>3</sup> Effective Spring 2021



## Pharm.D. Graduate Professional Electives

The following is a list of recommended graduate professional electives. A total of 7 credit hours of graduate professional electives is required. Other electives may be chosen with the written approval of the CPPS Curriculum Committee. A graduate course which significantly overlaps in content with a course used to fulfill the undergraduate professional elective requirement will not count towards fulfilling the graduate professional elective requirement. Credit for courses taken outside The University of Toledo can be counted towards professional elective credit requirements if a grade of C or better is earned, but grades will not be factored into CPPS or University of Toledo GPA calculations.

Code	Title	Hours
<b>MBC</b>		
MBC 5100/7100	Ethical Conduct Research	1
MBC 5380	Medicinal And Poisonous Plants	3
MBC 5620/7620	Biochemical Techniques	2
MBC 6100/8100	Advanced Immunology	2
MBC 6190/8190	Advanced Medicinal Chemistry	4
MBC 6200/8200	Biomedical Chemistry	4
MBC 6400	Cannabis Science: Plants and Products	3
MBC 6980	Special Topics In Biomedical Chemistry	1-5
<b>PHCL</b>		
PHCL 5730	Toxicology I	3
PHCL 5750	Toxicology II	3
PHCL 5990	Problems In Pharmacology	1-6
PHCL 6400	Cannabis Science – Risks & Benefits	3
PHCL 6600	Seminar In Pharmacology	1
<b>PHPR</b>		
PHPR 5000	Residency and Postgraduate Training Preparation	1
PHPR 5010	Advanced Evidence Based Medicine	2
PHPR 5590	Readings in Access and Cultural Competence	2
PHPR 5710	Selected Topics In Pharmaceutical Technology	2-3
PHPR 5720	Pharmaceutical Rate Processes	3
PHPR 5810	FINANCE AND PERSONAL PLANNING FOR PHARMACISTS	2
PHPR 5910	Drug-Induced Diseases	1
PHPR 5990	Problems In Pharmacy Practice	1-6
PHPR 6010	Leadership and the Military Healthcare Professional	2
PHPR 6400	Topics in Internal Medicine	2
PHPR 6410	Leadership: Principles and Practice	2
PHPR 6530	Research Methods In Pharmacy Practice	2
PHPR 6600	Seminar In Administrative Pharmacy	1
PHPR 6670	Chemical Dependency And The Pharmacist	3
PHPR 6700	Special Topics in Diabetes Care	2
PHPR 6950	Seminar In Industrial Pharmacy	1
PHPR 6980	Special Topics	1-5
<b>PHM</b>		
PHM 6400	Physical and Mental Effects of Psychoactive Substances	2

### Additional Recommendations

BUAD 6100	Accounting For Decision Making	3
BUAD 6200	Corporate Finance	3
BUAD 6300	Strategic Marketing And Analysis	3
BUAD 6400	Results-Based Management	3
BUAD 6500	International Business	3
BUAD 6600	Supply Chain Management	3
BUAD 6800	Information Technology And E-Business	3
BUAD 6900	Strategic Management Capstone	3
CHEM 6510/8510	Protein Chemistry	4
COUN 6240	Diagnosis And Mental Health	4
COUN 6470/8470	Drugs And Mental Health Counseling	4
COUN 8460	Substance Abuse Counseling	4
EDP 5230		3
PUBH 6080	Social Determinants of Health	3
PUBH 6330	Public Health and Aging	3
PUBH 6430	Community Mental Health	3
PUBH 6520	Public Health Nutrition	3
SOC 5160	Health And Gender	3

- PLO 1.1 Learner - Seek, analyze, integrate, and apply foundational knowledge of medications and pharmacy practice (biomedical; pharmaceutical; social, behavioral, administrative; and clinical sciences; drug classes; and digital health).
- PLO 2.1 Problem-solver - Use problem solving and critical thinking skills, along with an innovative mindset, to address challenges and to promote positive change.
- PLO 2.2 Communicator - Actively engage, listen, and communicate verbally, nonverbally, and in writing when interacting with or educating an individual, group, or organization.
- PLO 2.3 Ally - Mitigate health disparities by considering, recognizing, and navigating cultural and structural factors (e.g., social determinants of health, diversity, equity, inclusion, and accessibility) to improve access and health outcomes.
- PLO 2.4 Provider - Provide whole person care to individuals as the medication specialist using the Pharmacists' Patient Care Process
- PLO 2.5 Advocate - Promote the best interests of patients and/or the pharmacy profession within healthcare settings and at the community, state, or national level.
- PLO 2.6 Steward - Optimize patient healthcare outcomes using human, financial, technological, and physical resources to improve the safety, efficacy, and environmental impact of medication use systems.
- PLO 2.7 Collaborator - Actively engage and contribute as a healthcare team member by demonstrating core interprofessional competencies.
- PLO 2.8 Promoter - Assess factors that influence the health and wellness of a population and develop strategies to address those factors.
- PLO 2.9 Leader - Demonstrate the ability to influence and support the achievement of shared goals on a team, regardless of one's role.
- PLO 3.1 Self-aware - Examine, reflect on, and address personal and professional attributes (e.g., knowledge, metacognition, skills, abilities, beliefs, biases, motivation, help-seeking strategies,



and emotional intelligence that could enhance or limit growth, development, professional identity.

- PLO 3.2 Professional - Exhibit attitudes and behaviors that embody a commitment to building and maintaining trust with patients, colleagues, other health care professionals, and society

## Pharm.D./MBA Dual Degree Program

The College of Pharmacy and Pharmaceutical Science (CPPS) and the Neff College of Business and Innovation (COBI) work cooperatively to enable students in the Pharm.D. program to earn an MBA.

### Administration of the Pharm.D./MBA

The admission process for the Pharm.D./MBA will require that students apply to each program separately. More specifically, students will apply and be required to meet the admission requirements of the MBA program as administered by the COBI, and the same students will be required to apply and meet the admission requirements of the Pharm.D. program as administered by the CPPS. The GMAT requirement for the MBA program is waived for students accepted into the Pharm.D. program. The COBI Graduate and CPPS Student Advising Offices provide advising for their respective portions of the programs. Degrees will be conferred separately with the COBI conferring the MBA and the CPPS conferring the Pharm.D.

### MBA Admissions Procedures

For admission to the program, The University of Toledo MBA program requires a 2.7 undergraduate GPA, pre-requisite Common Body of Knowledge business courses, (<https://catalog.utoledo.edu/graduate/business-innovation/departments-schools/college-programs/mba/#requirementstext>) and a score of 450 on the Graduate Management Admissions Test (GMAT). The GMAT is waived for pharmacy students who have completed the PCAT and/or have already been accepted in the University of Toledo CPPS Doctor of Pharmacy (PharmD) program.

Students applying to the dual degree program will select the General Administration MBA major. For further admission information please refer to the COBI catalog or online admissions website.

### MBA Curriculum

#### Integrated Curriculum

PharmD/MBA students may use specific course credit towards both degrees. These include:

1. OSMC 5510 (COBI Undergraduate Core Knowledge) is satisfied by the UToledo PREP Curriculum (MATH 2600), PharmD Curriculum (PHPR 4530 & 4540), or any other equivalent Statistics I course.
2. ECON 1150 or 1200 (COBI Undergraduate Core Knowledge) will satisfy the PREP social science requirement
3. Three of the 6000 level MBA courses, will fulfill the 7 credits of graduate elective requirement for the PharmD program
4. One IPPE longitudinal Administration, Leadership, or Management (ALM) rotation will fulfill 1 MBA elective credit hour. This experience will also count towards the PharmD experiential hour elective requirements
5. Two APPE ALM rotations will fulfill 8 MBA elective credit hours

Please see the COBI catalog (<https://catalog.utoledo.edu/graduate/business-innovation/>) for specific course information related to the MBA.

## Department of Medicinal and Biological Chemistry

Dr. Katherine Wall, Chair

The Department of Medicinal and Biological Chemistry consists of faculty members with a variety of research interests ranging from design and synthesis of drugs directed toward neurotransmitter receptors to the development of novel therapeutics for cancer and infectious disease. The department is equipped with state-of-the-art computer-assisted instrumentation, including facilities for organic chemical and macromolecular synthesis and analysis, molecular graphics, and imaging. These facilities are available for use by all students involved in graduate research.

### Degrees Offered

- BSPS in Drug Discovery and Design (p. 492)
- BSPS/MS Medicinal Chemistry (p. 483)

#### MBC 2960 Undergraduate Research

[1-6 credit hours]

Development and pursuit of undergraduate research in Medicinal and Biological Chemistry.

**Term Offered:** Spring, Summer, Fall

#### MBC 3100 Ethical Practice in Research

[1 credit hour]

Consideration of the scientific, ethical, and legal obligations expected in the conduct of academic and industrial pharmaceutical research.

**Term Offered:** Spring

#### MBC 3310 Medicinal Chemistry I: Drug Action And Design

[2 credit hours]

An introductory course presenting the basic chemical principles governing the behavior of drugs and the design of new therapeutics.

**Prerequisites:** CHEM 2420 with a minimum grade of D-

**Term Offered:** Fall

#### MBC 3320 Medicinal Chemistry II: Drug Design and Drug Action

[3 credit hours]

A course presenting application of basic medicinal chemistry principles in drug design and drug action, which are key to drug discovery and drug development.

**Prerequisites:** (MBC 3310 with a minimum grade of D- and MBC 3550 with a minimum grade of D-)

**Term Offered:** Spring

#### MBC 3330 Techniques in Pharmaceutical and Medicinal Chemistry

[2 credit hours]

A consideration and application of analytic and chemistry techniques useful for pharmaceutical and medicinal chemistry students.

**Term Offered:** Fall

**MBC 3340 Techniques in Pharmaceutical and Medicinal Chemistry Laboratory**

[1 credit hour]

A laboratory course that fosters development of analytical and chemistry techniques useful for pharmaceutical and medicinal chemistry students.

**Corequisites:** MBC 3330**Term Offered:** Fall**MBC 3550 Physiological Chemistry I: Structure And Function Of Biological Macromolecules**

[3 credit hours]

An examination of the levels of structure of proteins, nucleic acids, other biomolecules and biomolecular assemblies.

**Term Offered:** Fall**MBC 3552 Physiological Chemistry II Cellular Metabolism and Homeostasis**

[2 credit hours]

An examination of the chemistry and regulation of metabolic processes in cells, interacting cells and tissues.

**Prerequisites:** MBC 3550 with a minimum grade of D- or MBC 5550 with a minimum grade of D-**Term Offered:** Spring**MBC 3560 Physiological Chemistry II: Chemical Regulation Of Cells And Organisms**

[3 credit hours]

An examination of the chemistry and regulation of metabolic processes in cells, interacting cells and tissues.

**Prerequisites:** MBC 3550 with a minimum grade of D-**Term Offered:** Spring**MBC 3860 Microbiology for Pharmaceutical Professionals**

[2 credit hours]

This is a lecture and laboratory course with emphasis on microorganisms that cause disease. Special attention will be paid to structures and mechanisms present in microorganisms that can be exploited to inhibit the growth and survival of these organisms in a human host.

**Prerequisites:** MBC 3550 with a minimum grade of D- or MBC 5550 with a minimum grade of D-**Term Offered:** Spring**MBC 3880 Medicinal And Biological Chemistry Laboratory**

[3 credit hours]

Laboratory and lecture teaching fundamental laboratory skills in synthetic medicinal chemistry.

**Term Offered:** Spring, Fall**MBC 4380 Medicinal Plants**

[3 credit hours]

A lecture/field course emphasizing medicinal and poisonous plants of this locale.

**Term Offered:** Summer, Fall**MBC 4400 Cannabis Science: Plants and Products**

[3 credit hours]

CS Plants & Products considers in-depth the growth of Cannabis sativa and its subspecies as well as the production and physical properties of both chemical and consumer products derived from them. Examining the factors, procedures, and techniques that make for optimal medicinal and recreational outcomes, the course is designed for learners with diverse backgrounds, interests, and intents

**Term Offered:** Spring, Summer, Fall**MBC 4710 Targeted Drug Design**

[3 credit hours]

A survey of novel macromolecular targeting approaches to drug design in important human disorders. The course has a seminar/discussion/student presentation format.

**Prerequisites:** MBC 3320 with a minimum grade of D-**Term Offered:** Summer, Fall**MBC 4780 Internship in Medicinal Chemistry**

[3-12 credit hours]

An experiential course in which students acquire practical knowledge through hands-on experience in an area of medicinal and biological chemistry by working in an academic, private or government laboratory or professional site.

**Prerequisites:** MBC 3320 with a minimum grade of D- and MBC 3560 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MBC 4850 Advanced Immunology And Tissue Culture Laboratory**

[1-10 credit hours]

Research experience in medicinally related immunology including literature investigations, tissue culture, cell sorting and sterile biotechniques and culminating with a seminar and written report.

**Term Offered:** Spring, Summer, Fall**MBC 4870 Biomedical Chemistry Laboratory**

[1-10 credit hours]

Research experience in biomedical chemistry including literature investigations and chemical synthesis of medicinally important compounds and culminating with a seminar and written report.

**Term Offered:** Spring, Summer, Fall**MBC 4900 Honors Seminar In Medicinal And Biological Chemistry**

[1-3 credit hours]

An examination of a specific question in the context of the primary literature in medicinal or biological chemistry.

**Term Offered:** Spring, Summer, Fall**MBC 4910 Problems In Biomedical Chemistry**

[1-3 credit hours]

Selected study of topics in biomedical chemistry. New chemical and biochemical strategies in drug design are examined in detail.

**Term Offered:** Spring, Summer, Fall**MBC 4950 Research In Medicinal Chemistry**

[3-8 credit hours]

Selected research and study in medicinal chemistry.

**Term Offered:** Spring, Summer, Fall**MBC 4960 Honors Thesis In Medicinal And Biological Chemistry**

[1-5 credit hours]

An examination of a specific research question in medicinal or biological chemistry that can be answered through experimental work.

**Term Offered:** Spring, Summer, Fall**MBC 4980 Special Topics In Drug Design**

[1-4 credit hours]

A detailed examination of new chemical and biochemical strategies in drug design.

**Prerequisites:** (MBC 3320 with a minimum grade of D- and MBC 3560 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall

## BSPS/MS Medicinal Chemistry

### MEDICINAL AND BIOLOGICAL CHEMISTRY (MBC) OR DRUG DISCOVERY AND DESIGN MAJOR & MASTER OF SCIENCE (M.S.) IN MEDICINAL CHEMISTRY OPTION

#### Admissions

Students must meet the requirements for entry into the Bachelor of Science of Pharmaceutical Science (BSPS) program. At the beginning of the second semester of their P1 year (spring semester, third year of study) the student applies for provisional acceptance into the graduate program and identifies an MBC faculty mentor for an in-house internship to be taken during the summer between the P1 and P2 years. Once the BSPS degree is awarded and the criteria for admission into the M.S. in Medicinal Chemistry program in College of Graduate Study are met, the student will be fully accepted into the graduate program. The internship mentor will become the graduate advisor of the student.

#### Plan of Study

More information on the Plan of Study for the combined program can be found under MS in Medicinal Chemistry in the **graduate catalog** (<https://catalog.utoledo.edu/graduate/pharmacy-pharmaceutical-sciences/departments-programs/medicinal-biological-chemistry/ms-medicinal-chemistry/#planofstudytext>).

## Department of Pharmacy Practice

Martin Ohlinger, Chair

The Department of Pharmacy Practice consists of 23 faculty members in the areas of Pharmacy Practice, Health Outcomes and Socioeconomic Sciences, Cosmetic Science and Formulation Design, Pharmaceutics and Industrial Pharmacy. The faculty of the department represent a diverse group of interests and activities that lead to the accomplishment of the mission of the College and University. In addition, over 300 community-based faculty assist the department in the teaching mission by providing training sites. The Department faculty practice in a variety of healthcare settings.

#### Degrees Offered

- BSPS in Cosmetic Science and Formulation Design (PCOS) (p. 489)
- BSPS in Drug Discovery and Design (p. 492)
- Cosmetic Science Minor (p. 495)

#### PHM 3000 Integrated Pharmaceutical and Clinical Sciences 1

[6 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, Pharmacokinetics and Pharmacy Practice, to study etiology, pathophysiology, clinical presentation, diagnosis and treatments. The course focuses on clinical laboratory tests and monitoring, hypertension, hyperlipidemia, diabetes and endocrine related disorders.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D-

**Corequisites:** PHPR 3460

**Term Offered:** Spring

#### PHM 3100 Cardiology I Hypertension and Hyperlipidemia

[2 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacy Practice, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of Hypertension and Hyperlipidemia.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D-

**Corequisites:** PHPR 3460

#### PHM 3120 Diabetes Endocrine

[3 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacy Practice, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of Diabetes and Endocrine related disorders.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D-

**Corequisites:** PHPR 3460

#### PHM 3700 Career Planning Strategies

[1 credit hour]

An applied course for which students learn the fundamentals of career exploration, job searching, and professionalism as it pertains to the pharmaceutical sciences industry.

**Term Offered:** Spring, Fall

#### PHM 4000 Integrated Pharmaceutical and Clinical Sciences 2

[8 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, Pharmacokinetics and Pharmacy Practice, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of immunologic disorders, pharmacokinetic considerations and infectious diseases.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PHCL 4160 with a minimum grade of D- and PHM 3000 with a minimum grade of D-

**Corequisites:** PHPR 4350

**Term Offered:** Fall

#### PHM 4010 Immunology

[3 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacotherapeutics, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of immune system and immune based disease and hypersensitivity.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PHPR 3060 with a minimum grade of D-

**Corequisites:** PHPR 4350

#### PHM 4030 Infectious Disease

[4 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacotherapeutics, to study etiology, pathophysiology, clinical presentation, diagnosis and treatment of Infectious Diseases.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PHPR 3060 with a minimum grade of D-

**Corequisites:** PHPR 4350, PHPR 4470

**PHM 4100 Psychiatry and Neurology**

[3 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacy Practice, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of neurologic and psychiatric disorders.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PPHR 3060 with a minimum grade of D-

**Corequisites:** PPHR 4360

**PHM 4120 Pain and Substance Abuse**

[2 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacotherapeutics, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of acute and chronic pain and substance use disorders.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PPHR 3060 with a minimum grade of D-

**Corequisites:** PPHR 4360

**PHM 4140 Hematology**

[1.5 credit hours]

An integrated course that includes Pharmacology and Pharmacotherapeutics, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of Hematologic and related disorders.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PPHR 3060 with a minimum grade of D-

**Corequisites:** PPHR 4360

**PHM 4160 Pulmonary**

[1.5 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacotherapeutics, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of pulmonary diseases.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PPHR 3060 with a minimum grade of D-

**Corequisites:** PPHR 4360

**PHM 4200 Integrated Pharmaceutical and Clinical Sciences 3**

[8 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, Pharmacokinetics and Pharmacy Practice, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of pulmonary hematologic, psychiatric, neurologic and pain and substance abuse disorders.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PHM 3000 with a minimum grade of D-

**Corequisites:** PPHR 4360

**Term Offered:** Spring

**PHM 4780 Internship in Drug Discovery and Design**

[3 credit hours]

An experiential course for which students acquire practical knowledge through hands-on experience in an area of pharmaceutical sciences by working in an academic, private, or government laboratory or professional site.

**Term Offered:** Spring, Summer, Fall

**PHPR 1000 Orientation**

[1 credit hour]

Lectures and small group discussions include University, Freshman Orientation, FYI subjects, plus introductory elements of Pharmacy professional culture.

**Term Offered:** Fall

**PHPR 2000 Introduction to Pharmacy and Pharmaceutical Sciences**

[1 credit hour]

This course is designed for pre-pharmacy students pursuing a degree in pharmacy or pharmaceutical sciences to connect with the college, explore career opportunities, self-evaluate skills, and career goals, and learn the basics of certain medical terminology, medications, personal care products, and disease states to assist in the understanding and motivation of pharmacy and pharmacy science-based coursework.

**Term Offered:** Fall

**PHPR 2020 Careers in Cosmetic Science**

[1 credit hour]

An introductory course to careers in the cosmetic industry with interactive keynote guest speakers.

**Term Offered:** Spring

**PHPR 2040 Introduction to Cosmetic Science**

[1 credit hour]

An introductory course about the structure of the cosmetic industry, careers, product categories, and regulatory considerations which govern the industry.

**Term Offered:** Spring, Fall

**PHPR 3000 Pharmaceutics and Dosage Form Design**

[5 credit hours]

The lectures and labs in Pharmaceutics and Dosage Form Design have an overarching theme of drug product knowledge. Topics for the lectures and labs include drug product design, pharmaceutical calculations, and an emphasis on contemporary pharmacy compounding.

**Term Offered:** Fall

**PHPR 3010 Pharmaceutical Calculations**

[2 credit hours]

This course is intended to present the principles involved in solving any mathematical problem which may be encountered in the practice of pharmacy-logical thought processes will be used.

**Term Offered:** Fall

**PHPR 3020 Pharmaceutics I**

[3 credit hours]

A lecture introduction to the principles, theory, and processes involved in the manufacture and compounding of fundamental classes of dosage forms.

**Corequisites:** PPHR 3010

**Term Offered:** Fall

**PHPR 3030 Pharmaceutics II**

[3 credit hours]

A continuation of PPHR 3020 as a lecture to the principles, theory, and processes involved in the manufacture and compounding of fundamental classes of dosage forms.

**Prerequisites:** PPHR 3020 with a minimum grade of D- and PPHR 3010 with a minimum grade of D-

**Term Offered:** Spring

**PHPR 3040 Cosmetic Ingredients**

[2 credit hours]

Physicochemical and cosmetic properties, function, and use of the various ingredients used in cosmetics and personal care products. Students learn why these ingredients are present in products and how to select them for a given formulation.

**Prerequisites:** CHEM 1230 with a minimum grade of D- and CHEM 1240 with a minimum grade of D-

**Term Offered:** Spring, Fall

**PHPR 3050 Interprofessional Approach to Patient Care**

[1 credit hour]

This course is designed to prepare all health professions students to deliberately and constructively work together with the common goal of building a safer, better patient-centered and community/population-oriented U.S. health care system. Students will be assigned to small-group interprofessional teams and will interact and collaborate with students from other healthcare professions.

**Term Offered:** Fall

**PHPR 3060 Introduction to Patient Care**

[1 credit hour]

This course will introduce concepts relative to the patient care process and the understanding of the pathophysiology and pharmacotherapy of disease states. The course will discuss commonly used clinical laboratory tests and how to interpret and apply their results to improve patient care, identify patient specific factors that impact medication dosing.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D-

**Corequisites:** PHPR 3460

**Term Offered:** Spring

**PHPR 3070 Pharmaceuticals and Pharmaceutical Technology I**

[4 credit hours]

Course considers the principles and thought processes involved in solving pharmacy-related mathematical problems and the theory and processes involved in the manufacture and extemporaneous compounding of dosage forms.

**Term Offered:** Fall

**PHPR 3080 PPD-2**

[4 credit hours]

Further exploration of the principles, theory and processes involved in the development and preparation of parenteral, ophthalmic and other non-oral drug delivery systems.

**Term Offered:** Spring

**PHPR 3100 Emulsion Science**

[1 credit hour]

Emulsion and aligned colloidal phenomena is at the core of most cosmetic and personal care formulation technology. This course will provide an overview of emulsion formulation basics including reversible and irreversible formulation changes and emulsion stabilization techniques.

**Prerequisites:** PHPR 3040 with a minimum grade of D-

**PHPR 3110 Pharmaceuticals Lab I**

[1 credit hour]

A laboratory introduction to the principles, theory, and processes involved in the manufacture and compounding of fundamental classes of dosage forms.

**Corequisites:** PHPR 3010, PHPR 3020

**PHPR 3120 Pharmaceuticals Lab II**

[1 credit hour]

A laboratory course that follows PHPR 3110 that introduces principles, theory, and processes involved in the manufacture and compounding of various classes of dosage forms.

**Corequisites:** PHPR 3030

**Term Offered:** Spring

**PHPR 3130 PPT-1**

[2 credit hours]

Discussion of pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of attention deficit hyperactivity disorder, sleep disorders, acid-base, fluid & electrolytic imbalances, pain and substance abuse.

**Corequisites:** MBC 3310, PHCL 3700

**Term Offered:** Fall

**PHPR 3140 PPT-2**

[2 credit hours]

Discussion of pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of endocrine disorders and reproduction.

**Prerequisites:** PHPR 3130 with a minimum grade of C

**Corequisites:** MBC 3320, MBC 3560, PHCL 3720

**Term Offered:** Spring

**PHPR 3150 Essentials of U.S. Healthcare Delivery and Pharmacoeconomic Evaluation**

[2 credit hours]

This course provides an in-depth understanding of the essential components of healthcare delivery in the United States, with a focus on pharmacoeconomic evaluation.

**Term Offered:** Spring

**PHPR 3240 Cosmetic Ingredients Laboratory**

[1 credit hour]

Laboratory introduction to the cosmetic ingredients and active ingredients learned in Cosmetic Ingredients lecture course. Demonstrations and laboratory experiments to prepare students for product formulation courses.

**Corequisites:** PHPR 3040

**Term Offered:** Fall

**PHPR 3250 Introduction to Self Care**

[1 credit hour]

The course will provide an introduction to the over-the-counter marketplace and discussion of the pharmacist's patient care process. Special emphasis will be placed on how pharmacists should help patients safely and effectively treat common medical problems.

**Prerequisites:** PHPR 3450 with a minimum grade of D- and PHCL 3700 with a minimum grade of D-

**Corequisites:** PHPR 3460

**Term Offered:** Spring

**PHPR 3260 PHCAD-1**

[2 credit hours]

Description and analysis of the organization, financing and delivery of healthcare in the U.S.. Development of communication skills for pharmacists to function optimally in the system is emphasized.

**Term Offered:** Spring, Fall**PHPR 3300 Commonly Prescribed Meds and Med Term 1**

[1 credit hour]

This course introduces students to commonly prescribed medications and medical terminology.

**Term Offered:** Fall**PHPR 3310 Introduction to Pharmacy Law**

[1 credit hour]

The purpose of this course is to introduce students to laws that regulate the practice of pharmacy. Federal drug laws and specific state laws that regulate the filling and dispensing of prescriptions will be reviewed and applied.

**Term Offered:** Spring**PHPR 3450 Pharmacy Skills Development-1**

[2 credit hours]

This course is designed to introduce students to the Pharmacists' Patient Care Process as it is applied to the Community Pharmacy Setting in order to prepare them for their Community Pharmacy Introductory Pharmacy Practice Experiences.

**Term Offered:** Fall**PHPR 3460 Pharmacy Skills Development-2**

[2 credit hours]

Building on competencies from prerequisite courses, this course is designed to enhance skills in the Pharmacists' Patient Care Process (PPCP) as they are applied to the Community Pharmacy Setting.

**Prerequisites:** PHPR 3450 with a minimum grade of D- or PHPR 5450 with a minimum grade of D-

**Term Offered:** Spring**PHPR 3470 Pharmacokinetics**

[3 credit hours]

This course will provide the theoretical basis and clinical application of pharmacokinetics as relates to drug dosing, absorption, distribution, biotransformation and excretion.

**PHPR 3500 Cosmetic Laws and Regulations**

[1 credit hour]

Overview of the United States cosmetic laws and regulations, legal definitions, and product safety will be taught. Topics will include how cosmetics are regulated in the US, labeling requirements, product compliance and safety concerns. Knowledge to market cosmetic products with regulatory compliance in the US will be provided.

**Prerequisites:** PHPR 3040 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Fall**PHPR 3600 The Science of Color in Cosmetics**

[1 credit hour]

An in-depth course, which gives students a full overview and understanding of color vision, dimensions of color description and measurement scales. The chemistry and structure of color additives used in cosmetics and personal care products will be covered along with a comprehensive review of regulations and their history in the US. The course will also introduce formulating and manufacturing concepts that students need to consider when working with colors. A group project will be required and will be presented to the entire class.

**Prerequisites:** PHPR 3040 with a minimum grade of D-

**Term Offered:** Spring**PHPR 3620 Cosmetic and Fragrance Product Development**

[1 credit hour]

An in-depth course aimed at giving students a full overview and understanding of the product development process to create cosmetic and fragrance products. Students will learn the necessary strategies and tools, as well as implement them to create a new product in a workshop format. The class will focus on topics such as ideation, competitive and market analysis, development, and the interdepartmental teamwork required to successfully launch a product. A group project will be required and will be presented to the entire class.

**Corequisites:** PHPR 3040

**Term Offered:** Fall**PHPR 3920 Introductory Pharmacy Practice Experience I**

[1 credit hour]

First professional year course designed to enhance professional growth through an introduction to clinical skill development and direct patient care activities within institutional and community pharmacy practice settings. Prerequisite: Admission into the Pharm.D. Program.

**Term Offered:** Spring, Summer, Fall**PHPR 3930 Introductory Pharmacy Practice Experience 2**

[1 credit hour]

First professional year course designed to enhance professional growth through an introduction to clinical skill development and direct patient care activities within institutional and community pharmacy practice settings. Prerequisite: Admission into the Pharm.D Program.

**Prerequisites:** PHPR 3920 with a minimum grade of C or PHPR 5920 with a minimum grade of C

**Term Offered:** Spring**PHPR 4050 Pharmacy Skills Development-3**

[2 credit hours]

This course will enhance skills in interpersonal communication with emphasis on application of one-to-one communication and patient counseling. Also includes the development of skills in the delivery of immunizations and medication therapy management (MTM).

**Prerequisites:** PHPR 3460 with a minimum grade of D-

**PHPR 4070 PPD-3**

[3 credit hours]

Interpersonal communication with emphasis upon application of one-to-one communication and patient counseling. Instruction in the broad dimension of professional pharmacy practice and responsibility for providing pharmaceutical care, and use of drug information resources, and provision of drug information.

**Prerequisites:** PHPR 3070 with a minimum grade of C

**Term Offered:** Fall

**PHPR 4080 PPD-4**

[3 credit hours]

Course enhances professional development to meet specific patient and health care practitioner needs. Instruction includes effective literature analysis, presentation of care plans, and pharmacy jurisprudence.

**Prerequisites:** PHPR 4070 with a minimum grade of C

**Corequisites:** PHPR 4140, PHPR 4330

**Term Offered:** Spring

**PHPR 4130 PPT-3**

[4 credit hours]

Discussion of pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of immune, renal and rheumatologic disorders and transplantation.

**Prerequisites:** PHPR 3140 with a minimum grade of C and MBC 3800 with a minimum grade of C

**Corequisites:** PHCL 4700

**Term Offered:** Fall

**PHPR 4140 PPT-4**

[4 credit hours]

Discussion of pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of immunology and infectious diseases

**Prerequisites:** MBC 3800 with a minimum grade of C

**Corequisites:** MBC 4300, PHCL 4720

**Term Offered:** Spring

**PHPR 4160 Pharmacokinetics**

[3 credit hours]

Theoretical basis and clinical application of pharmacokinetics as relates to drug dosing, absorption, distribution, biotransformation, and excretion.

**Term Offered:** Spring, Fall

**PHPR 4220 Patient Centered Care**

[2 credit hours]

This course focuses on learning various aspects of Patient Centered Care including: Medication Therapy Management (MTM) services, Motivational Interviewing, Patient Assessment, and Cultural Competence.

**Corequisites:** PHPR 4350

**Term Offered:** Fall

**PHPR 4270 Health Systems**

[1.5 credit hours]

This course will provide an overview of the organization, financing and delivery of healthcare in the U.S.

**Term Offered:** Spring

**PHPR 4300 Commonly Prescribed Meds and Med Term II**

[1 credit hour]

This course introduces students to commonly prescribed medications and medical terminology.

**Prerequisites:** PHPR 3300 with a minimum grade of D-

**Corequisites:** PHPR 4350

**Term Offered:** Fall

**PHPR 4330 RESEARCH DESIGN AND DRUG LITERATURE EVALUATION 1**

[2 credit hours]

Concepts of research design, statistical analysis, literature evaluation and evidence based medicine are introduced and integrated in a manner that depicts their practical relevance to pharmacy practice.

**Corequisites:** PHPR 4080

**Term Offered:** Spring

**PHPR 4350 Pharmacy Skills Development - 3**

[2 credit hours]

Building on competencies from prerequisite courses, this course is designed to enhance skills in the Pharmacists' Patient Care Process (PPCP) as they are applied to the Community and Ambulatory Care Pharmacy settings.

**Prerequisites:** PHPR 3460 with a minimum grade of D-

**Corequisites:** PHPR 4220

**Term Offered:** Fall

**PHPR 4360 Pharmacy Skills Development - 4**

[2 credit hours]

Building on competencies from prerequisite courses, this course is designed to enhance skills in the Pharmacists' Patient Care Process (PPCP) as they are applied to the Institutional Pharmacy setting.

**Prerequisites:** PHPR 4350 with a minimum grade of D- and PHPR 4530 with a minimum grade of D- or PHPR 6540 with a minimum grade of D-

and PHPR 6350 with a minimum grade of D-

**Term Offered:** Spring

**PHPR 4470 Applied Clinical Pharmacokinetics Primer**

[1 credit hour]

This course is a discussion of pharmacokinetic concepts which are commonly utilized in therapeutic drug monitoring and clinical application.

**Prerequisites:** PHPR 3470 with a minimum grade of D-

**Corequisites:** PHM 4030

**PHPR 4520 PHCAD-2**

[2 credit hours]

This course is to introduce students to the administrative sciences (marketing/management, etc.) and their respective roles in the provision of pharmaceutical care.

**Prerequisites:** PHPR 3260 with a minimum grade of C

**Term Offered:** Spring

**PHPR 4530 Evidence Based Medicine 1**

[3 credit hours]

This course introduces the principles and practice of evidence based medicine (EBM) in guiding clinical decision making in pharmacy practice.

**Prerequisites:** MATH 2640 with a minimum grade of D- or MATH 2600 with a minimum grade of D-

**Term Offered:** Fall

**PHPR 4540 Evidence Based Medicine 2**

[2 credit hours]

This course expands upon the principles and practice of evidence based medicine (EBM) in guiding clinical decision making in pharmacy practice. Students will develop their formal oral presentation skills.

**Prerequisites:** PHPR 4530 with a minimum grade of D-

**Corequisites:** PHPR 4360

**Term Offered:** Spring

**PHPR 4550 Analysis Of The Pharmaceutical Environment**

[3 credit hours]

A theoretical and practical examination of the pharmaceutical environment and drug distribution system using the science of marketing as a tool for analysis.

**Term Offered:** Spring

**PHPR 4600 Seminar in Pharmacy Administration**

[1 credit hour]

This course provides a global perspective on pharmacy administration and healthcare related issues, including economic, humanistic, clinical, and other aspects of disease management. Prerequisite: Enrollment in the BSPS in Pharmacy Administration program or permission of instructor

**Term Offered:** Fall**PHPR 4730 Cosmetic Science I**

[3 credit hours]

A detailed discussion of cosmetics and personal care products. Main discussion points include product functions, ingredient selection, product design and formulation, product testing, and regulatory requirements.

Guest speakers from the cosmetic and personal care industry are regularly invited to the classes.

**Prerequisites:** PHPR 3040 with a minimum grade of D-**Term Offered:** Spring**PHPR 4740 Cosmetic Science Laboratory I**

[1 credit hour]

A laboratory course that focuses on cosmetic and personal care product formulation and testing basics. This laboratory supplements the Cosmetic Science 1 lecture course.

**Prerequisites:** PHPR 3240 (may be taken concurrently) with a minimum grade of D-**Term Offered:** Spring, Fall**PHPR 4750 Cosmetic Science II**

[3 credit hours]

A continuation of PHPR 4730 Cosmetic Science I. A detailed discussion of cosmetics and personal care products. Main discussion points include product functions, ingredient selection, product design and formulation, product testing, and regulatory requirements. Guest speakers from the cosmetic and personal care industry are regularly invited to the classes.

**Prerequisites:** PHPR 4730 with a minimum grade of D-**Term Offered:** Spring, Fall**PHPR 4760 Cosmetic Science Laboratory II**

[1 credit hour]

A laboratory course that focuses on cosmetic and personal care product formulation and testing basics. This laboratory supplements the Cosmetic Science 2 lecture course.

**Prerequisites:** PHPR 4730 with a minimum grade of D- and PHPR 4740 with a minimum grade of D-**Term Offered:** Fall**PHPR 4770 Advanced Drug Delivery Systems – I**

[3 credit hours]

The development of drug delivery systems relies on the broad understanding of many different physiological, chemical, and biological factors. This course is designed to introduce advanced drug delivery systems for oral, ocular, transdermal and buccal delivery. The course design is based on the premise that the student desires knowledge about the latest developments in formulation and drug delivery. Students may be required to design a project proposal for presentation.

**Term Offered:** Spring, Fall**PHPR 4780 Internship In Pharmacy Administration**

[3-6 credit hours]

An experiential course in which students acquire practical knowledge through hands-on experience in an area of pharmacy administration by working in an academic or non-academic (private business) environment.

**Term Offered:** Spring, Summer, Fall**PHPR 4820 Advanced Formulation Techniques**

[1 credit hour]

An advanced laboratory course in cosmetics and personal care products with an emphasis on specialty and active raw material formulation design techniques, new and emerging product development formulations, and quality control testing methods.

**Prerequisites:** PHPR 4760 with a minimum grade of D-**Term Offered:** Spring**PHPR 4880 Internship in Pharmaceutics**

[3-6 credit hours]

Students will acquire practical knowledge and hands-on experience in the areas of pharmacy administration or industrial pharmacy/pharmaceutics by working in the pharmaceutical industry or with health care systems.

**Term Offered:** Spring, Summer, Fall**PHPR 4890 Internship in Cosmetic Science and Formulation Design**

[3-6 credit hours]

An experiential course in which students acquire practical knowledge through hands-on experience in an area of cosmetic science by working in an academic, private or government laboratory or professional site.

**Term Offered:** Spring, Summer, Fall**PHPR 4900 Honors Seminar In Pharmacy Practice**

[1-3 credit hours]

An examination of a specific question in the context of the primary literature in pharmacy practice for advanced students.

**Term Offered:** Spring, Summer, Fall**PHPR 4910 Pharmacy Practice Problems**

[1-5 credit hours]

Selected undergraduate research projects in pharmacy practice.

**Term Offered:** Spring, Summer, Fall**PHPR 4920 Introductory Pharmacy Practice Experience 3**

[1 credit hour]

The purpose of this course is to increase students' awareness and involvement in areas related to the contemporary practice of pharmacy. Students will participate in projects that nurture their professional growth.

**Prerequisites:** PHPR 3930 with a minimum grade of C or PHPR 5930 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**PHPR 4930 Introductory Pharmacy Practice Experience 4**

[1 credit hour]

The purpose of this course is to increase students' awareness and involvement in areas related to the contemporary practice of pharmacy. Students will participate in projects that nurture their professional growth.

**Prerequisites:** PHPR 4920 with a minimum grade of C or PHPR 6930 with a minimum grade of D-**Term Offered:** Spring, Summer



### PHPR 4940 Skin Care Science

[1 credit hour]

Overview of the skin physiology, product development process, and products claims will be taught. Topics will include skin dryness, fine lines/wrinkles, and skin pigmentation concerns. Knowledge to develop skincare products from idea generation, ingredient selection to finished products will be provided.

**Prerequisites:** PHPR 3040 with a minimum grade of D-

**Term Offered:** Spring

### PHPR 4960 Honors Thesis In Pharmacy Practice

[2-5 credit hours]

An examination of a specific research question in pharmacy practice which can be answered through application of experimental work.

**Term Offered:** Spring, Summer, Fall

## BSPS in Cosmetic Science and Formulation Design (PCOS)

The Cosmetic Science and Formulation Design major is an interdisciplinary program involved with developing, formulating, producing, and testing cosmetics and personal care products. The major places a strong emphasis on the design and formulation of personal care and beauty products, and as part of their experience, students formulate 50+ personal care and cosmetic products in the laboratory during their studies. Cosmetic science majors also study the art and business of cosmetics in various elective and required courses. Additionally, students in this major learn about regulations and how to assess products' safety, performance and quality.

### BSPS Internship Description

A 400-hour internship experience is required to be completed for those who are enrolled within the Bachelor of Science in Pharmaceutical Sciences Program (non-PharmD). Internships must be related to the pharmaceutical sciences industry and may take place within a variety of local, regional, national, and international sites. Career coaching is provided to help students throughout the internship search process (e.g., resume writing, employer outreach, interview preparation, etc.). The internship experience typically occurs during the summer after P1 year, and the course grade is determined through a combination of supervisor evaluations and course assignments.

Cosmetic Science and Formulation Design Pipeline Program to MS in Cosmetic Science and Formulation Design - An example is attached in other documents

### List of Courses for PH-PCOS-BSS - Cosmetic Science and Formulation Design, BSPS – Pre Professional and Professional Years

#### Pre Professional

Code	Title	Hours
PHPR 1000	Orientation	1
MATH 1850	Single Variable Calculus I	4
CHEM 1230	General Chemistry I	0,4
CHEM 1280	General Chemistry Lab I	1
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4

BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
PHCL 2610	Introductory Physiology	3
MATH 2640	Statistics for Applied Science	3
CHEM 1240	General Chemistry II	0,4
CHEM 1290	General Chemistry Lab II	1
ENGL 1110	College Composition I	3
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
PHYS 1750	Introduction To Physics	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1

#### Diversity of US

Non-Diversity of US

Social Science Core

Social Science Core

Arts/Humanities Core

Arts/Humanities Core

#### Professional

Code	Title	Hours
PHPR 2040	Introduction to Cosmetic Science	1
PHPR 3010	Pharmaceutical Calculations	2
PHPR 3020	Pharmaceutics I	3
PHPR 3110	Pharmaceutics Lab I	1
PHPR 3040	Cosmetic Ingredients	2
PHPR 3240	Cosmetic Ingredients Laboratory	1
PHM 3700	Career Planning Strategies	1
PSLS 3000	Sales Career Orientation And Management	1
MBC 3310	Medicinal Chemistry I: Drug Action And Design	2
PHPR 3030	Pharmaceutics II	3
PHPR 3120	Pharmaceutics Lab II	1
PHPR 4730	Cosmetic Science I	3
PHPR 4740	Cosmetic Science Laboratory I	1
BUAD 3010	Principles Of Marketing <sup>4</sup>	3
PHPR 4890	Internship in Cosmetic Science and Formulation Design	3-6
MBC 3330	Techniques in Pharmaceutical and Medicinal Chemistry	2
MBC 3340	Techniques in Pharmaceutical and Medicinal Chemistry Laboratory	1
MBC 3550	Physiological Chemistry I: Structure And Function Of Biological Macromolecules	3
PHPR 4750	Cosmetic Science II	3
PHPR 4760	Cosmetic Science Laboratory II	1
PHCL 3700	Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology	3
MBC 3860	Microbiology for Pharmaceutical Professionals	2

PHCL 4160	Biopharmaceutics & Pharmacokinetics	3
Cosmetic Science elective		
Cosmetic Science elective		

### Combined bachelor's to master's for MS in Cosmetic Science and Formulation Design

#### List of Courses for PH-PCOS-BSPS 4+1 pathway to the MS in Cosmetic Science and Formulation Design

Courses listed above for the PH-PCOS-BSPS Pre Professional and Professional Years plus the three courses (3 credit hours each) listed below for the 4+1 Pathway Program

Code	Title	Hours
PHPR 5800	Cosmetic Ingredients and Product Forms	3
PHPR 5820	Cosmetic Trends and Claims	3
PHPR 5830	Cosmetic Regulations, Ethics, and Practices	3

Below is a sample plan of study. Consult your degree audit for your program requirements.

## BSPS Cosmetic Science and Formulation Design MAJOR Curriculum (FOR P1 STUDENTS ENTERING IN FALL 2023 AND AFTER)

### PREPROFESSIONAL

First Term	Hours	
PHPR 1000	Orientation	1
MATH 1850	Single Variable Calculus I *	4
CHEM 1230	General Chemistry I *	4
CHEM 1280	General Chemistry Lab I	1
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
<b>Hours</b>		<b>15</b>

Second Term	Hours	
PHCL 2610	Introductory Physiology	3
MATH 2640	Statistics for Applied Science *2	3
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
ENGL 1110	College Composition I	3
Diversity of US <sup>3</sup>		3
<b>Hours</b>		<b>17</b>

Third Term	Hours	
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
PHYS 1750	Introduction To Physics <sup>1</sup>	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3

Social Sciences Core	3	
<b>Hours</b>		<b>14</b>

### Fourth Term

CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
Social Sciences Core		3
Arts/Humanities Core		3
Arts/Humanities Core		3
Non#US Diversity <sup>3</sup>		3

1 Only offered during fall semesters 2 Not required prior to P1 for BSPS-only applicants 3 If double-dip, PREP course load reduced by 3 hours. Only one double dip is allowed for the UT Core requirements. \* Students accepted into the College of Pharmacy and Pharmaceutical Sciences should be academically prepared to be placed into MATH 1850 and CHEM 1230. Students placing into a lower math level - MATH 1200, MATH1320 or MATH1750 and/or placing into a lower level chemistry - CHEM 1090 (based on students' testing scores) will require additional hours for graduation.

<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>62</b>

Students should consult their Degree Audit for coursework that fulfills elective course requirements in the General Education/Core area.

### PROFESSIONAL

Fifth Term	Hours	
PHPR 2040	Introduction to Cosmetic Science <sup>1</sup>	1
PHPR 3010	Pharmaceutical Calculations	2
PHPR 3020	Pharmaceutics I	3
PHPR 3110	Pharmaceutics Lab I	1
PHPR 3040	Cosmetic Ingredients	2
PHPR 3240	Cosmetic Ingredients Laboratory	1
PHM 3700	Career Planning Strategies	1
PSLS 3000	Sales Career Orientation And Management	1
MBC 3310	Medicinal Chemistry I: Drug Action And Design	2
<b>Hours</b>		<b>14</b>

Sixth Term	Hours	
PHPR 3030	Pharmaceutics II	3
PHPR 3120	Pharmaceutics Lab II	1
PHPR 4730	Cosmetic Science I	3
PHPR 4740	Cosmetic Science Laboratory I	1
BUAD 3010	Principles Of Marketing <sup>4</sup>	3
Cosmetic Science Elective <sup>3</sup>		3
<b>Hours</b>		<b>14</b>

Seventh Term	Hours	
PHPR 4890	Internship in Cosmetic Science and Formulation Design <sup>2</sup>	3-6
<b>Hours</b>		<b>3-6</b>

**Eighth Term**

MBC 3330	Techniques in Pharmaceutical and Medicinal Chemistry	2
MBC 3340	Techniques in Pharmaceutical and Medicinal Chemistry Laboratory	1
MBC 3550	Physiological Chemistry I: Structure And Function Of Biological Macromolecules	3
PHPR 4750	Cosmetic Science II	3
PHPR 4760	Cosmetic Science Laboratory II	1
PHPR 4770	Advanced Drug Delivery Systems – I	3
PHCL 3700	Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology	3

**Hours 16**

**Ninth Term**

MBC 3860	Microbiology for Pharmaceutical Professionals	2
PHCL 4160	Biopharmaceutics & Pharmacokinetics	3
Cosmetic Science Electives <sup>3</sup>		9

**Hours 14**

**Total Hours 61-64**

<sup>1</sup> If not taken during pre-professional division.

<sup>2</sup> 3 credit hours are required, and an additional 1-3 credit hours can be taken. The additional credit hours cannot be used as Cosmetic Science elective hours.

<sup>3</sup> See Cosmetic Science elective list.

<sup>4</sup> Students interested in Cosmetic Science and Formulation Design will need to take ECON 1200 for one of the Social Science Core courses.

**Cosmetic Science and Formulation Design Electives (must take 12 credits from the list):**

A minimum of 6 credits must come from the following elective courses:

Code	Title	Hours
PHPR 2020	Careers in Cosmetic Science	1
PHPR 3100	Emulsion Science	1
PHPR 3500	Cosmetic Laws and Regulations	1
PHPR 3620	Cosmetic and Fragrance Product Development	1
PHPR 4820	Advanced Formulation Techniques	1
PHPR 4900	Honors Seminar In Pharmacy Practice	1-3
PHPR 4910	Pharmacy Practice Problems	1-5
PHPR 4940	Skin Care Science	1
PHPR 4960	Honors Thesis In Pharmacy Practice	2-5
CHEM 3730	Physical Chemistry I	3
CHEM 3740	Physical Chemistry II	3
ECON 4750	Health Economics	3
ECON 3240	Environmental Economics	3
HEAL 2800	Principles Of Nutrition	3
HEAL 3500	Environmental Health	3
BIOL 3030	Cell Biology	3
BIOL 3040	Cell Biology Laboratory	2

ART 1050	Foundations of 2D Design	3
CMPT 2410	Adobe InDesign Desktop Publishing	3
MBC 3552	Physiological Chemistry II Cellular Metabolism and Homeostasis	2
MBC 3560	Physiological Chemistry II: Chemical Regulation Of Cells And Organisms	3
MBC 4380	Medicinal Plants	3

Up to 6 credits may come from the following courses:

Code	Title	Hours
PSLS 3440	Professional Sales	3
PSLS 3450	Sales Technologies and Strategies	3
PSLS 4740	Advanced Sales	3
PSLS 3080	Purchasing And Business Relationship Management	3
PSLS 4710	Salesforce Leadership	3
MKTG 4540	Business Marketing	3
MKTG 3690	Marketing Communications	3
MKTG 3850	Buyer Behavior And Relationship Marketing	3

Code	Title	Hours
Preprofessional		62
Professional		61

Please Note: If double-dip one of the UT Core courses, the courseload will be reduced from 123 to 120.

**Total Hours 123**

**BSPS COSMETIC SCIENCE AND FORMULATION DESIGN MINOR CURRICULUM**

**Required core courses ( 4 courses totaling 9 credit hours required)**

**COLLEGE OF PHARMACY AND PHARMACEUTICAL SCIENCES**

Code	Title	Hours
PHPR 2040	Introduction to Cosmetic Science (Fall)	1
PHPR 3040	Cosmetic Ingredients (Fall)	2
PHPR 4730	Cosmetic Science I (Spring)	3
PHPR 4750	Cosmetic Science II (Fall)	3

**ELECTIVE COURSES ( Select 6 credit hours)**

**COLLEGE OF NATURAL SCIENCES AND MATHEMATICS**

Code	Title	Hours
CHEM 3510	Biochemistry I (Fall)	3
CHEM 3610	Inorganic Chemistry I (Spring)	3
CHEM 4720	Modern Topics in Physical Chemistry (Spring)	4
CHEM 4200	Green Chemistry (Fall)	3
CHEM 4810	Materials Science I (Fall)	4
CHEM 4820	Materials Science II (Spring)	4



**COLLEGE OF ENGINEERING**

Code	Title	Hours
CHEE 4800	Polymer Science And Engineering (Fall)	3
CHEE 4960	Senior Honors Thesis (Fall, Spring & Summer)	3
CHEE 4980	Special Topics In Chemical Engineering (Fall, Spring & Summer)	1-4
CHEE 4990	Independent Studies In Chemical Engineering (Fall, Spring & Summer)	1-4

**COLLEGE OF PHARMACY AND PHARMACEUTICAL SCIENCES**

Code	Title	Hours
PHCL 3700	Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology (Fall)	3
MBC 3550	Physiological Chemistry I: Structure And Function Of Biological Macromolecules (Fall)	3
MBC 3560	Physiological Chemistry II: Chemical Regulation Of Cells And Organisms (Spring)	3
MBC 3330	Techniques in Pharmaceutical and Medicinal Chemistry (Fall)	2
MBC 3340	Techniques in Pharmaceutical and Medicinal Chemistry Laboratory (Fall)	1
PHCL 4160	Biopharmaceutics & Pharmacokinetics	3

## Combined bachelor's to master's for MS in Cosmetic Science and Formulation Design

Code	Title	Hours
PHPR 5800	Cosmetic Ingredients and Product Forms	3
PHPR 5820	Cosmetic Trends and Claims	3
PHPR 5830	Cosmetic Regulations, Ethics, and Practices	3

### Combined Bachelor's To Master's - Cosmetic Science And Formulation Design, BSPS To MS In Cosmetic Science And Formulation Design

Undergraduate students accepted to the University of Toledo's Cosmetic Science and Formulation Design Pipeline Program option will be admitted to the MS in Cosmetic Science and Formulation Design and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: The courses are listed above for the PH-PCOS-BSPS Pre-Professional and Professional Years. For the 4+1 Pathway Program 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) take the following 3 courses 1) PHPR 5800 Cosmetic Ingredients and Product Forms, 2) PHPR 5820 Cosmetic Trends and Claims, and 3) PHPR 5830 Cosmetic Regulations, Ethics, and Practices instead of three PCOS elective courses equaling 9 credits hours. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

## Learning Outcomes

- PLO 1. Communicate effectively and work cooperatively in both disciplinary and interdisciplinary teams.
- PLO 2. Apply pharmaceutical sciences and cosmetic science knowledge and skills to evaluate and solve problems.
- PLO 3. Assess the physicochemical and biological properties and function of ingredients in cosmetics and drug products.
- PLO 4. Use techniques and procedures related to the formulation, testing, and quality assurance of cosmetics and drugs to design stable, safe, and effective products.
- PLO 5. Apply formulation and documentation practices and current regulatory requirements that govern the registration, manufacturing, testing, labeling, and advertising of cosmetics and drugs in the United States.

## BSPS in Drug Discovery and Design

Drug Discovery and Design prepares students to research and design pharmaceutical drugs for a variety of patient needs and health objectives.

The program's lab-based curriculum blends courses in pharmacology and toxicology, medicinal and biological chemistry, pharmaceuticals, and healthcare delivery. Aside from the robust career prospects, the Drug Discovery and Design Program also serves as a great pre-med major for entering medical school, physician assistant (PA) school, veterinary school or dental school.

### BSPS Internship Description

A 400-hour internship experience is required to be completed for all five majors within the Bachelor of Science in Pharmaceutical Sciences Program: 1) Cosmetic Science & Formulation Design, 2) Medicinal & Biological Chemistry, 3) Pharmaceuticals, 4) Pharmacology & Toxicology, and 5) Pharmacy Administration. Internships must be related to the pharmaceutical sciences industry and may take place within a variety of local, regional, national, and international sites. Students are not guaranteed or placed into internship experiences; however, robust career development resources are provided to help ensure students' success (i.e., job search assistance, networking contacts, resume writing assistance, interview preparation, etc.). Internships typically occur during the summer after P1 year. The internship experience typically occurs during the summer after P1 year, and the course grade is determined through a combination of supervisor evaluations and course assignments.

## drug discovery and design MAJOR & MASTER OF SCIENCE (M.S.) IN MEDICINAL CHEMISTRY OPTION

The combination of BPS degree with a major in Drug Discovery and Design (DDAD) and M.S. in Medicinal Chemistry gives students the ability to obtain two degrees in five years. Students in this program complete the BPS portion in 3.5 years by graduating in December of the 4th year.

Once the BPS degree is awarded the student can move from provisional to accepted in the graduate program. Information on and requirements for the M.S. portion of the program is in the CPPS Graduate Catalog in the section entitled: Master of Science in Medicinal Chemistry.

The student begins the Master's portion in the spring semester following the BPS MBC graduation at the end of the Fall term, and could complete the M.S. degree by the end of the spring semester of the following year. Therefore, the two degrees, BPS MBC and M.S. Medicinal Chemistry, could be completed in 5 calendar years.

### Drug Discovery and Design

Completion of the requirements of the Pre-Pharmacy Curriculum, 62 semester hours without a double-dip

Code	Title	Hours
MBC 3310	Medicinal Chemistry I: Drug Action And Design	2
MBC 3550	Physiological Chemistry I: Structure And Function Of Biological Macromolecules	3
PHCL 3700	Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology	3
PHPR 3010	Pharmaceutical Calculations	2
PHPR 3020	Pharmaceutics I	3
PHM 3700	Career Planning Strategies	1
MBC 3100	Ethical Practice in Research	1
MBC 3320	Medicinal Chemistry II: Drug Design and Drug Action	3
MBC 3552	Physiological Chemistry II Cellular Metabolism and Homeostasis	2
PHCL 3730	BSPS Pharmacology II: Endocrine and CNS Pharmacology	3
PHCL 3810	Pharmacology And Toxicology Laboratory	1
PHPR 3030	Pharmaceutics II	3
PHPR 3150	Essentials of U.S. Healthcare Delivery and Pharmacoeconomic Evaluation	2
PHM 4780	Internship in Drug Discovery and Design	3
MBC 3330	Techniques in Pharmaceutical and Medicinal Chemistry	2
MBC 3340	Techniques in Pharmaceutical and Medicinal Chemistry Laboratory	1
MBC 4710	Targeted Drug Design	3
PHCL 4730	Toxicology I	3
PHCL 4810	BSPS Pharmacology III: CNS and Cardiovascular Pharmacology	3

## BSPS Drug Discovery and Design Curriculum (FOR P1 STUDENTS ENTERING IN FALL 2025 AND AFTER)

### PREPROFESSIONAL

First Term	Hours
PHPR 1000 Orientation *	1
MATH 1850 Single Variable Calculus I *	4
CHEM 1230 General Chemistry I *	4
CHEM 1280 General Chemistry Lab I	1
BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
<b>Hours</b>	<b>15</b>

Second Term	Hours
PHCL 2610 Introductory Physiology	3
MATH 2640 Statistics for Applied Science * <sup>2</sup>	3
CHEM 1240 General Chemistry II	4
CHEM 1290 General Chemistry Lab II	1
ENGL 1110 College Composition I *	3
Diversity of US <sup>3</sup>	3
<b>Hours</b>	<b>17</b>

Third Term	Hours
CHEM 2410 Organic Chemistry I	3
CHEM 2460 Organic Chemistry Laboratory I for Non-Majors	1
PHYS 1750 Introduction To Physics <sup>1</sup>	4
ENGL 1130 College Composition II: Academic Disciplines And Discourse *	3
Social Sciences Core <sup>3</sup>	3
<b>Hours</b>	<b>14</b>

Fourth Term	Hours
CHEM 2420 Organic Chemistry II	3
CHEM 2470 Organic Chemistry Laboratory II for Non-Majors	1
Social Sciences Core <sup>3</sup>	3
Arts/Humanities Core <sup>3</sup>	3
Arts/Humanities Core <sup>3</sup>	3
Non#US Diversity <sup>3</sup>	3
<b>Hours</b>	<b>16</b>
<b>Total Hours</b>	<b>62</b>

<sup>1</sup> Only offered during fall semesters

<sup>2</sup> Not required prior to P1 for BPS-only applicants

<sup>3</sup> If double-dip, PREP courseload reduced by 3 hours. Only one double dip is allowed for the UT Core requirements.

\* Students should be academically prepared to be placed into MATH 1850 and CHEM 1230. Students placing into a lower math level - MATH 1200, MATH 1320 or MATH 1750 and/or placing into a lower level

chemistry - CHEM 1090 (based on students' testing scores) will require additional hours for graduation.

\*Equivalent courses:

- o ENGL 1110 or ENGL 1010
- o ENGL 1130 or ENGL 2950
- o MATH 1850 = MATH 1750+1760
- o MATH 2640 = MATH 2600
- o PHYS 1750 = PHYS 2070 (please note that PHYS 2070 AND 2080 is recommended for pre-med/pre-vet/pre-dental degrees)
- o PHCL 2610 = EXSC 2560+2570

Students should consult their Degree Audit for coursework that fulfills elective course requirements in the General Education/Core area.

## PROFESSIONAL

Fifth Term		Hours
MBC 3310	Medicinal Chemistry I: Drug Action And Design	2
MBC 3550	Physiological Chemistry I: Structure And Function Of Biological Macromolecules	3
PHCL 3700	Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology	3
PHPR 3010	Pharmaceutical Calculations	2
PHPR 3020	Pharmaceutics I	3
PHM 3700	Career Planning Strategies	1
Professional Electives		0-3
<b>Hours</b>		<b>14-17</b>

Sixth Term		Hours
MBC 3100	Ethical Practice in Research	1
MBC 3320	Medicinal Chemistry II: Drug Design and Drug Action	3
MBC 3552	Physiological Chemistry II Cellular Metabolism and Homeostasis	2
PHCL 3730	BSPS Pharmacology II: Endocrine and CNS Pharmacology	3
PHCL 3810	Pharmacology And Toxicology Laboratory	1
PHPR 3030	Pharmaceutics II	3
PHPR 3150	Essentials of U.S. Healthcare Delivery and Pharmacoeconomic Evaluation	2
Professional Electives <sup>1</sup>		0-2
Professional elective (MBC 3860, Microbiology for Pharmaceutical Professionals, recommended)		
<b>Hours</b>		<b>15-17</b>

Seventh Term		Hours
PHM 4780	Internship in Drug Discovery and Design <sup>1</sup>	3
Students taking an internship at a site which is outside of the College of Pharmacy and Pharmaceutical Sciences will register for PHM 4780.		

The internship requirement can alternately be satisfied with 3 semester hours of MBC 4780, PHCL 4780, PHPR 4780 or PHPR 4880 if the internship site is within the College of Pharmacy and Pharmaceutical Sciences and under the supervision of a CPPS faculty member. Internship credit beyond the required 3 semester hours is counted for graduation as free elective hours and not as professional elective hours.

Eighth Term		Hours
MBC 3330	Techniques in Pharmaceutical and Medicinal Chemistry	2
MBC 3340	Techniques in Pharmaceutical and Medicinal Chemistry Laboratory	1
MBC 4710	Targeted Drug Design	3
PHCL 4730	Toxicology I	3
PHCL 4810	BSPS Pharmacology III: CNS and Cardiovascular Pharmacology	3
Professional Elective		3-5
<b>Hours</b>		<b>15-17</b>
Ninth Term		Hours
Professional Elective - to complete 13 hours		0-4
Free Elective (if necessary to complete 120 hours)		0-4
<b>Hours</b>		<b>0-8</b>
<b>Total Hours</b>		<b>47-62</b>

<sup>1</sup> Need a total of 13 credit hours as major electives.

All requirements listed above must be fulfilled with a minimum of 120 semester hours required for graduation.

## Drug Discovery and Design Electives

Other electives require the approval of the Drug Discovery and Design major coordinator.

Code	Title	Hours
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
BIOL 3010	Molecular Genetics	3
BIOL 3020	Molecular Genetics Laboratory	2
BIOL 3030	Cell Biology	3
BIOL 3040	Cell Biology Laboratory	2
BIOL 4010	Molecular Biology	3
BIOL 4030	Microbiology	3
BIOL 4050	Immunology	3
BIOL 4110	Human Genetics and Genomics	3
BIOL 4330	Parasitology	3
CHEM 3310	Analytical Chemistry	2
CHEM 3360	Analytical Chemistry Laboratory	2
CHEM 3560	Biochemistry Laboratory	2

CHEM 3730	Physical Chemistry I	3
CHEM 3710	Physical Chemistry For The Biosciences I	3
CHEM 3720	Physical Chemistry For The Biosciences II	3
CHEM 4200	Green Chemistry	3
CHEM 4400	Advanced Organic Chemistry	4
CHEM 4920	Readings In Chemistry III	1-2
ECON 4750	Health Economics	3
EEES 4450	Hazardous Waste Management	3
MBC 3860	Microbiology for Pharmaceutical Professionals	2
MBC 3880	Medicinal And Biological Chemistry Laboratory	3
MBC 4380	Medicinal Plants	3
MBC 4400	Cannabis Science: Plants and Products	3
MBC 4900	Honors Seminar In Medicinal And Biological Chemistry	1-3
MBC 4910	Problems In Biomedical Chemistry	1-3
MBC 4950	Research In Medicinal Chemistry	3-8
MBC 4960	Honors Thesis In Medicinal And Biological Chemistry	1-5
PHCL 4160	Biopharmaceutics & Pharmacokinetics	3
PHCL 4400	Cannabis Science – Risks & Benefits	3
PHCL 4750	Toxicology II	3
PHPR 4770	Advanced Drug Delivery Systems – I	3
PHCL 4900	Honors Seminar In Pharmacology	1-3
PHCL 4910	Problems In Pharmacology	1-3
PHCL 4960	Honors Thesis In Pharmacology	2-5
PHPR 4900	Honors Seminar In Pharmacy Practice	1-3
PHPR 3110	Pharmaceutics Lab I	1
PHPR 3120	Pharmaceutics Lab II	1
PHPR 4910	Pharmacy Practice Problems	1-5
PHPR 4960	Honors Thesis In Pharmacy Practice	2-5
HEAL 1800	Medical Terminology	3
HEAL 2800	Principles Of Nutrition	3
PHIL 3370	Medical Ethics	3
PHYS 2080	General Physics II	4

- Describe the drug development process, the role of pharmaceutical sciences in different stages of drug development, and provide examples of contemporary successful drug development cases and unmet needs.
- Apply pharmaceutical laboratory techniques for material identification, bioassays, experimental design, and quality assurance, while also explaining the scientific principles and practical applications of analytical techniques.
- Perform calculations and correctly make solutions for chemical reactions and bioassays, to control pH, and to prepare formulations.
- Apply principles of physical, biological, and administrative sciences to solve problems successfully and ethically in the pharmaceutical sciences.
- Predict chemical, biological, and pharmaceutical properties of compounds relevant to drug action and dosage form.
- Analyze scientific literature on a given topic in the pharmaceutical sciences to draw overall conclusions based on the data.

- Communicate effectively and work successfully as an individual or cooperatively as a team member.

## Cosmetic Science Minor

The College of Pharmacy and Pharmaceutical Sciences offers a Cosmetic Science minor. This minor is for students interested in sciences and who want to learn about beauty and personal care products. The four required lecture-based courses teach students about how the cosmetic industry works, ingredients that go into finished products, and how finished products are formulated and tested. Elective courses help individualize the minor for students.

The cosmetic science minor requires 15 credit hours. A grade of D or higher is required in all courses used to fulfill the cosmetic science minor requirements. Prerequisites for all courses must be fulfilled.

Interested students should fill out the minor declaration form with the College of Pharmacy and Pharmaceutical Sciences and meet with an academic advisor in the College of Pharmacy and Pharmaceutical Sciences (Main Campus Wolfe Hall 1227 or call 419.530.2010, or Health Science Campus Wolfe Center 155 or call 419.383.1904).

Code	Title	Hours
<b>A) Required courses</b>		<b>9</b>
PHPR 2040	Introduction to Cosmetic Science (pre-reqs: CHEM 1230 and 1240)	
PHPR 3040	Cosmetic Ingredients (pre-reqs: CHEM 1230 and 1240)	
PHPR 4730	Cosmetic Science I (pre-req: PHPR 3040)	
PHPR 4750	Cosmetic Science II	
<b>B) Elective courses</b>		<b>6</b>
For College of Natural Sciences and Mathematics		
CHEM 3510	Biochemistry I	
CHEM 3610	Inorganic Chemistry I	
CHEM 4720	Modern Topics in Physical Chemistry	
CHEM 4200	Green Chemistry	
CHEM 4810	Materials Science I	
CHEM 4820	Materials Science II	
Electives for the College of Engineering		
CHEE 4800	Polymer Science And Engineering	
CHEE 4960	Senior Honors Thesis	
CHEE 4980	Special Topics In Chemical Engineering	
CHEE 4990	Independent Studies In Chemical Engineering	
For the College of Pharmacy and Pharmaceutical Sciences		
PHCL 3700	Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology	
MBC 3550	Physiological Chemistry I: Structure And Function Of Biological Macromolecules	
MBC 3560	Physiological Chemistry II: Chemical Regulation Of Cells And Organisms	
MBC 3330	Techniques in Pharmaceutical and Medicinal Chemistry	

MBC 3340	Techniques in Pharmaceutical and Medicinal Chemistry Laboratory
PHCL 4160	Biopharmaceutics & Pharmacokinetics
<b>Total Hours</b>	<b>15</b>

Note: Prerequisites from all courses must be fulfilled.

- Apply principles of physical, biological, and administrative sciences to successfully solve problems in the pharmaceutical sciences: (a) Interpret the results of studies as presented in reviews and in the primary literature. (b) Apply the concepts of controlled experimentation and evidence-based practice. (c) Be able to use primary literature and reference materials to acquire and evaluate relevant information and frame questions requiring further research. (d) Be able to begin a process of a critical evaluation of technical issues related to the pharmaceutical sciences.
- Communicate effectively, both orally and in writing, with other professionals and the public; write an interpretable technical report and/or business plans.
- Work cooperatively as part of both disciplinary and interdisciplinary teams.
- Apply the basic principles of chemistry, life science, medicinal chemistry, pharmacology and biochemistry as they apply to the activity of drugs, biological, and toxins.
- Be able to apply appropriate computer technology to create effective written, graphic, and oral presentations.
- Apply computer technology to the collection, processing, and analysis of data appropriate to a student's specialty.
- Discuss the organization of the scientific community and the roles of academia, government, and private industry as well as how this organization affects research, drug development, health care, and technical decision making.
- Develop skills to carry out duties in accordance with accepted legal, ethical, social, economic, and professional practices and interact in a professional manner with managers, colleagues, and subordinates.
- Develop the skills necessary to maintain professional competence and incorporate new developments and technologies into practice.
- Recognize key contemporary problems in a discipline, and understand how these are being addressed through research.
- Use techniques and procedures related to the formulation, testing and quality assurance of cosmetics and OTC drug-cosmetic products to design cosmetics and personal care products that are stable, safe, and effective.
- Apply formulation and documentation practices and apply current regulatory requirements that govern the registration, manufacture, testing, labeling, and advertising of cosmetics and drugs in the US.

## Department of Pharmacology and Experimental Therapeutics

Dr. Frederick Williams, Chair

The Department of Pharmacology and Experimental Therapeutics consists of faculty members who seek to integrate both basic and applied research in the pharmaceutical sciences into the academic programs in order to provide students with the information they

need to be successful in the challenging fields of pharmacy and the pharmaceutical industry. The department offers degree programs in the pharmaceutical sciences at the baccalaureate and graduate level and contributes to the training of students in the Pharm.D. program. Departmental courses cover a broad range of disciplines, including pharmacology, toxicology, drug development, and experimental therapeutics. The department's faculty have research interests in toxicology, pharmacokinetics, biopharmaceutics, neurochemistry, behavioral neuropharmacology, molecular pharmacology, gene therapy, drug metabolism and cancer chemotherapeutics, and pharmacology of the cardiovascular and renal systems.

Pharmacology and toxicology are biomedical sciences that study how to develop safe, effective drugs and prevent the harmful effects of chemicals. Pharmacology focuses on the way drugs interact with various living systems, including the properties, effects and mechanisms of drug action. Toxicology focuses on the interaction of toxic compounds in the body, including exposure assessment, dose response assessment and hazard identification.

### Degrees Offered

- BSPS in Drug Discovery and Design (p. 492)
- BS/MS Pharmaceutical Sciences – Pharmacology Toxicology (p. 501)

#### PHCL 2220 Drugs, Medicine And Society

[3 credit hours]

The course conveys a general knowledge of drugs, including how and where drugs act and the general pharmacology of specific classes of drugs, e.g., central nervous system active agents, bronchodilators, etc.

**Term Offered:** Spring

#### PHCL 2600 Functional Anatomy And Pathophysiology I

[4 credit hours]

A study of functional anatomy, physiology and pathophysiology to serve as background for the understanding of the action of drugs.

**Prerequisites:** (CHEM 1240 with a minimum grade of D- and CHEM 1290 with a minimum grade of D- and BIOL 2150 with a minimum grade of D- and BIOL 2160 with a minimum grade of D- and BIOL 2170 with a minimum grade of D- and BIOL 2180 with a minimum grade of D-)

**Term Offered:** Fall

#### PHCL 2610 Introductory Physiology

[3 credit hours]

This class is designed to give students a thorough introduction to human physiology and prepare them for success in the Pharmacy/Pharmaceutical Science curriculum.

**Prerequisites:** BIOL 2170 with a minimum grade of D-

**Term Offered:** Spring, Fall

#### PHCL 2620 Functional Anatomy And Pathophysiology II

[4 credit hours]

A continuation of PHCL 2600.

**Prerequisites:** PHCL 2600 with a minimum grade of D-

**Term Offered:** Spring



**PHCL 2900 Pharmacology Research Introduction**

[1-3 credit hours]

The course will introduce the undergraduate student to research in pharmacology. Students will work with faculty members throughout the semester to learn a variety of fundamental laboratory procedures, including record keeping, pharmacological calculations, experimental design, set-up and conduct of assays, data analysis and research presentation.

**Term Offered:** Spring, Summer, Fall**PHCL 3700 Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology**

[3 credit hours]

An introduction to the principles of pharmacology and the pharmacology of the autonomic nervous system."

**Term Offered:** Fall**PHCL 3720 PHARMACOLOGY II: ENDOCRINE, NSAID AND CARDIOVASCULAR PHARMACOLOGY**

[2 credit hours]

The pharmacology of drugs acting upon the endocrine and reproductive systems will be discussed followed by a discussion of the non-steroidal antiinflammatory agents and the drugs used to treat hypertension and hyperlipidemia.

**Prerequisites:** PHCL 3700 with a minimum grade of C**Corequisites:** MBC 3320, PHPR 3140**Term Offered:** Spring**PHCL 3730 BSPS Pharmacology II: Endocrine and CNS Pharmacology**

[3 credit hours]

The pharmacology of drugs acting upon the endocrine and reproductive systems as well as for the management of sleep disorders, anxiety, affective illness, schizophrenia and seizure disorders.

**Prerequisites:** PHCL 3700 with a minimum grade of D-**Term Offered:** Spring**PHCL 3810 Pharmacology And Toxicology Laboratory**

[1 credit hour]

The course will teach undergraduate students current methods in pharmacology and toxicology with an emphasis on practical, hands-on experience. Students will learn a variety of techniques commonly used in the pharmaceutical and toxicology industries.

**Prerequisites:** PHCL 3700 with a minimum grade of D-**Term Offered:** Spring**PHCL 4160 Biopharmaceutics & Pharmacokinetics**

[3 credit hours]

This course will provide the theoretical basis and clinical application of pharmacokinetics as relates to drug dosing, absorption, distribution, biotransformation, and excretion.

**Term Offered:** Spring**PHCL 4400 Cannabis Science – Risks & Benefits**

[3 credit hours]

Cannabis Science – Risks and Benefits – delves into the pharmacology, biochemistry, pharmacokinetics, and toxicology of cannabis products. The course will also cover the neuropsychopharmacology of cannabis and the effects of short term and long term uses of cannabis in the central nervous and peripheral systems.

**Term Offered:** Spring, Fall**PHCL 4700 Pharmacology III: Cns And Cardiovascular Pharmacology**

[2 credit hours]

The pharmacology of central nervous system active agents. Continues from PHCL 3720. Agents acting on the cardiovascular and renal systems are also discussed.

**Prerequisites:** PHCL 3700 with a minimum grade of C**Term Offered:** Fall**PHCL 4720 Pharmacology IV: Chemotherapeutic Agents**

[2 credit hours]

The pharmacology of anti-infective chemotherapeutic agents is presented. Issues such as the mechanism of antimicrobial action, disposition, resistance and problems attending the use of antimicrobial drugs will be discussed.

**Prerequisites:** (PHCL 3700 with a minimum grade of C and MBC 3800 with a minimum grade of C)**Term Offered:** Spring**PHCL 4730 Toxicology I**

[3 credit hours]

A synopsis of the basic elements of toxicology including dose-response, lethal dose-50, margin of safety, mechanisms of toxicity and nature of toxic injuries including mutagenesis, carcinogenesis, reproduction, and systemic toxicology. The toxicities of heavy metals and pesticides are also discussed.

**Corequisites:** PHCL 3700**Term Offered:** Fall**PHCL 4750 Toxicology II**

[3 credit hours]

This course provides the students with an overview of environmental toxicology, which emphasizes both air and water pollution. It also reviews the applications of different areas of toxicology, such as food toxicology emphasizing the safety standards of food and methods of evaluation of food safety, analytic toxicology and its applications in forensic toxicology and occupational toxicology. It also discusses general methods for toxicity evaluation.

**Prerequisites:** PHCL 3700 with a minimum grade of D-**Term Offered:** Spring**PHCL 4760 Toxicokinetics**

[3 credit hours]

The theory and practice of using kinetic principles to model the time course of toxic chemicals in the body and in the environment. Relation of the chemical time course to negative outcomes and application to risk assessment. Hands-on practice with kinetic analysis methods and software.

**Term Offered:** Summer, Fall**PHCL 4780 Internship in Pharmacology/Toxicology**

[3-6 credit hours]

In this experiential course, students will acquire practical knowledge through hands-on experience in the area of Pharmacology and / or Toxicology by working at an academic, private, or governmental laboratory or a professional site.

**Prerequisites:** (PHCL 3730 with a minimum grade of D- and PHCL 3810 with a minimum grade of D- and MBC 3320 with a minimum grade of D- and MBC 3552 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall

**PHCL 4810 BSPS Pharmacology III: CNS and Cardiovascular Pharmacology**

[3 credit hours]

The pharmacology of central nervous system active agents and agents acting on the cardiovascular and renal systems.

**Prerequisites:** PHCL 3730 with a minimum grade of D-

**Term Offered:** Fall

**PHCL 4820 BSPS Pharmacology IV: Chemotherapeutic Agents**

[3 credit hours]

The pharmacology of anti-infective chemotherapeutic agents including their mechanism of antimicrobial action, disposition, resistance and issues related to use.

**Prerequisites:** PHCL 4810 with a minimum grade of D-

**Term Offered:** Spring

**PHCL 4900 Honors Seminar In Pharmacology**

[1-3 credit hours]

To examine a specific question in the context of the primary literature in pharmacology and be able to present that in a seminar

**Term Offered:** Spring, Summer, Fall

**PHCL 4910 Problems In Pharmacology**

[1-3 credit hours]

An examination of a specific question in pharmacology which can be answered through application of experimental work.

**Term Offered:** Spring, Summer, Fall

**PHCL 4960 Honors Thesis In Pharmacology**

[2-5 credit hours]

An examination of a specific question in pharmacology which can be answered through application of experimental work, and a presentation in a thesis format.

**Term Offered:** Spring, Summer, Fall

## BSPS in Drug Discovery and Design

Drug Discovery and Design prepares students to research and design pharmaceutical drugs for a variety of patient needs and health objectives.

The program's lab-based curriculum blends courses in pharmacology and toxicology, medicinal and biological chemistry, pharmaceuticals, and healthcare delivery. Aside from the robust career prospects, the Drug Discovery and Design Program also serves as a great pre-med major for entering medical school, physician assistant (PA) school, veterinary school or dental school.

### BSPS Internship Description

A 400-hour internship experience is required to be completed for all five majors within the Bachelor of Science in Pharmaceutical Sciences Program: 1) Cosmetic Science & Formulation Design, 2) Medicinal & Biological Chemistry, 3) Pharmaceuticals, 4) Pharmacology & Toxicology, and 5) Pharmacy Administration. Internships must be related to the pharmaceutical sciences industry and may take place within a variety of local, regional, national, and international sites. Students are not guaranteed or placed into internship experiences; however, robust career development resources are provided to help ensure students' success (i.e., job search assistance, networking contacts, resume writing assistance, interview preparation, etc.). Internships typically occur during the summer after P1 year. The internship experience typically occurs during the summer after P1 year, and the course grade is

determined through a combination of supervisor evaluations and course assignments.

## drug discovery and design MAJOR & MASTER OF SCIENCE (M.S.) IN MEDICINAL CHEMISTRY OPTION

The combination of BSPS degree with a major in Drug Discovery and Design (DDAD) and M.S. in Medicinal Chemistry gives students the ability to obtain two degrees in five years. Students in this program complete the BSPS portion in 3.5 years by graduating in December of the 4th year.

Once the BSPS degree is awarded the student can move from provisional to accepted in the graduate program. Information on and requirements for the M.S. portion of the program is in the CPPS Graduate Catalog in the section entitled: Master of Science in Medicinal Chemistry.

The student begins the Master's portion in the spring semester following the BSPS MBC graduation at the end of the Fall term, and could complete the M.S. degree by the end of the spring semester of the following year. Therefore, the two degrees, BSPS MBC and M.S. Medicinal Chemistry, could be completed in 5 calendar years.

### Drug Discovery and Design

Completion of the requirements of the Pre-Pharmacy Curriculum, 62 semester hours without a double-dip

Code	Title	Hours
MBC 3310	Medicinal Chemistry I: Drug Action And Design	2
MBC 3550	Physiological Chemistry I: Structure And Function Of Biological Macromolecules	3
PHCL 3700	Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology	3
PHPR 3010	Pharmaceutical Calculations	2
PHPR 3020	Pharmaceutics I	3
PHM 3700	Career Planning Strategies	1
MBC 3100	Ethical Practice in Research	1
MBC 3320	Medicinal Chemistry II: Drug Design and Drug Action	3
MBC 3552	Physiological Chemistry II Cellular Metabolism and Homeostasis	2
PHCL 3730	BSPS Pharmacology II: Endocrine and CNS Pharmacology	3
PHCL 3810	Pharmacology And Toxicology Laboratory	1
PHPR 3030	Pharmaceutics II	3
PHPR 3150	Essentials of U.S. Healthcare Delivery and Pharmacoeconomic Evaluation	2
PHM 4780	Internship in Drug Discovery and Design	3
MBC 3330	Techniques in Pharmaceutical and Medicinal Chemistry	2
MBC 3340	Techniques in Pharmaceutical and Medicinal Chemistry Laboratory	1
MBC 4710	Targeted Drug Design	3
PHCL 4730	Toxicology I	3

PHCL 4810 BSPS Pharmacology III: CNS and Cardiovascular Pharmacology 3

## BSPS Drug Discovery and Design Curriculum (FOR P1 STUDENTS ENTERING IN FALL 2025 AND AFTER)

### PREPROFESSIONAL

First Term	Hours
PHPR 1000 Orientation *	1
MATH 1850 Single Variable Calculus I *	4
CHEM 1230 General Chemistry I *	4
CHEM 1280 General Chemistry Lab I	1
BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
<b>Hours</b>	<b>15</b>

### Second Term

PHCL 2610 Introductory Physiology	3
MATH 2640 Statistics for Applied Science * <sup>2</sup>	3
CHEM 1240 General Chemistry II	4
CHEM 1290 General Chemistry Lab II	1
ENGL 1110 College Composition I *	3
Diversity of US <sup>3</sup>	3
<b>Hours</b>	<b>17</b>

### Third Term

CHEM 2410 Organic Chemistry I	3
CHEM 2460 Organic Chemistry Laboratory I for Non-Majors	1
PHYS 1750 Introduction To Physics <sup>1</sup>	4
ENGL 1130 College Composition II: Academic Disciplines And Discourse *	3
Social Sciences Core <sup>3</sup>	3
<b>Hours</b>	<b>14</b>

### Fourth Term

CHEM 2420 Organic Chemistry II	3
CHEM 2470 Organic Chemistry Laboratory II for Non-Majors	1
Social Sciences Core <sup>3</sup>	3
Arts/Humanities Core <sup>3</sup>	3
Arts/Humanities Core <sup>3</sup>	3
Non#US Diversity <sup>3</sup>	3
<b>Hours</b>	<b>16</b>
<b>Total Hours</b>	<b>62</b>

<sup>1</sup> Only offered during fall semesters

<sup>2</sup> Not required prior to P1 for BSPS-only applicants

<sup>3</sup> If double-dip, PREP courseload reduced by 3 hours. Only one double dip is allowed for the UT Core requirements.

\* Students should be academically prepared to be placed into MATH 1850 and CHEM 1230. Students placing into a lower math level - MATH 1200, MATH 1320 or MATH 1750 and/or placing into a lower level chemistry - CHEM 1090 (based on students' testing scores) will require additional hours for graduation.

\*Equivalent courses:

o ENGL 1110 or ENGL 1010

o ENGL 1130 or ENGL 2950

o MATH 1850 = MATH 1750+1760

o MATH 2640 = MATH 2600

o PHYS 1750 = PHYS 2070 (please note that PHYS 2070 AND 2080 is recommended for pre-med/pre-vet/pre-dental degrees)

o PHCL 2610 = EXSC 2560+2570

Students should consult their Degree Audit for coursework that fulfills elective course requirements in the General Education/Core area.

### PROFESSIONAL

Fifth Term	Hours
MBC 3310 Medicinal Chemistry I: Drug Action And Design	2
MBC 3550 Physiological Chemistry I: Structure And Function Of Biological Macromolecules	3
PHCL 3700 Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology	3
PHPR 3010 Pharmaceutical Calculations	2
PHPR 3020 Pharmaceutics I	3
PHM 3700 Career Planning Strategies	1
Professional Electives	0-3
<b>Hours</b>	<b>14-17</b>

### Sixth Term

MBC 3100 Ethical Practice in Research	1
MBC 3320 Medicinal Chemistry II: Drug Design and Drug Action	3
MBC 3552 Physiological Chemistry II Cellular Metabolism and Homeostasis	2
PHCL 3730 BSPS Pharmacology II: Endocrine and CNS Pharmacology	3
PHCL 3810 Pharmacology And Toxicology Laboratory	1
PHPR 3030 Pharmaceutics II	3
PHPR 3150 Essentials of U.S. Healthcare Delivery and Pharmacoeconomic Evaluation	2
Professional Electives <sup>1</sup>	0-2
Professional elective (MBC 3860, Microbiology for Pharmaceutical Professionals, recommended)	
<b>Hours</b>	<b>15-17</b>

### Seventh Term

PHM 4780 Internship in Drug Discovery and Design <sup>1</sup>	3
Students taking an internship at a site which is outside of the College of Pharmacy and Pharmaceutical Sciences will register for PHM 4780.	

The internship requirement can alternately be satisfied with 3 semester hours of MBC 4780, PHCL 4780, PHPR 4780 or PHPR 4880 if the internship site is within the College of Pharmacy and Pharmaceutical Sciences and under the supervision of a CPPS faculty member. Internship credit beyond the required 3 semester hours is counted for graduation as free elective hours and not as professional elective hours.

	Hours	
<b>Eighth Term</b>		<b>3</b>
MBC 3330	Techniques in Pharmaceutical and Medicinal Chemistry	2
MBC 3340	Techniques in Pharmaceutical and Medicinal Chemistry Laboratory	1
MBC 4710	Targeted Drug Design	3
PHCL 4730	Toxicology I	3
PHCL 4810	BSPS Pharmacology III: CNS and Cardiovascular Pharmacology	3
Professional Elective		3-5
<b>Hours</b>		<b>15-17</b>
<b>Ninth Term</b>		
Professional Elective - to complete 13 hours		0-4
Free Elective (if necessary to complete 120 hours)		0-4
<b>Hours</b>		<b>0-8</b>
<b>Total Hours</b>		<b>47-62</b>

<sup>1</sup> Need a total of 13 credit hours as major electives.

All requirements listed above must be fulfilled with a minimum of 120 semester hours required for graduation.

## Drug Discovery and Design Electives

Other electives require the approval of the Drug Discovery and Design major coordinator.

Code	Title	Hours
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
BIOL 3010	Molecular Genetics	3
BIOL 3020	Molecular Genetics Laboratory	2
BIOL 3030	Cell Biology	3
BIOL 3040	Cell Biology Laboratory	2
BIOL 4010	Molecular Biology	3
BIOL 4030	Microbiology	3
BIOL 4050	Immunology	3
BIOL 4110	Human Genetics and Genomics	3
BIOL 4330	Parasitology	3
CHEM 3310	Analytical Chemistry	2
CHEM 3360	Analytical Chemistry Laboratory	2
CHEM 3560	Biochemistry Laboratory	2

CHEM 3730	Physical Chemistry I	3
CHEM 3710	Physical Chemistry For The Biosciences I	3
CHEM 3720	Physical Chemistry For The Biosciences II	3
CHEM 4200	Green Chemistry	3
CHEM 4400	Advanced Organic Chemistry	4
CHEM 4920	Readings In Chemistry III	1-2
ECON 4750	Health Economics	3
EEES 4450	Hazardous Waste Management	3
MBC 3860	Microbiology for Pharmaceutical Professionals	2
MBC 3880	Medicinal And Biological Chemistry Laboratory	3
MBC 4380	Medicinal Plants	3
MBC 4400	Cannabis Science: Plants and Products	3
MBC 4900	Honors Seminar In Medicinal And Biological Chemistry	1-3
MBC 4910	Problems In Biomedical Chemistry	1-3
MBC 4950	Research In Medicinal Chemistry	3-8
MBC 4960	Honors Thesis In Medicinal And Biological Chemistry	1-5
PHCL 4160	Biopharmaceutics & Pharmacokinetics	3
PHCL 4400	Cannabis Science – Risks & Benefits	3
PHCL 4750	Toxicology II	3
PHPR 4770	Advanced Drug Delivery Systems – I	3
PHCL 4900	Honors Seminar In Pharmacology	1-3
PHCL 4910	Problems In Pharmacology	1-3
PHCL 4960	Honors Thesis In Pharmacology	2-5
PHPR 4900	Honors Seminar In Pharmacy Practice	1-3
PHPR 3110	Pharmaceutics Lab I	1
PHPR 3120	Pharmaceutics Lab II	1
PHPR 4910	Pharmacy Practice Problems	1-5
PHPR 4960	Honors Thesis In Pharmacy Practice	2-5
HEAL 1800	Medical Terminology	3
HEAL 2800	Principles Of Nutrition	3
PHIL 3370	Medical Ethics	3
PHYS 2080	General Physics II	4

- Describe the drug development process, the role of pharmaceutical sciences in different stages of drug development, and provide examples of contemporary successful drug development cases and unmet needs.
- Apply pharmaceutical laboratory techniques for material identification, bioassays, experimental design, and quality assurance, while also explaining the scientific principles and practical applications of analytical techniques.
- Perform calculations and correctly make solutions for chemical reactions and bioassays, to control pH, and to prepare formulations.
- Apply principles of physical, biological, and administrative sciences to solve problems successfully and ethically in the pharmaceutical sciences.
- Predict chemical, biological, and pharmaceutical properties of compounds relevant to drug action and dosage form.
- Analyze scientific literature on a given topic in the pharmaceutical sciences to draw overall conclusions based on the data.

- Communicate effectively and work successfully as an individual or cooperatively as a team member.

## BS/MS Pharmaceutical Sciences – Pharmacology Toxicology

The combined BS/MS program in Pharmacology and Toxicology (PTOX) allows students to receive both the BSPS and MSPS degrees in five years.

All course requirements for each degree, BSPS and MSPS, remain intact for the combined BS/MS program. However, since some classes that are required in the BSPS program overlap with the MSPS program, they are waived for the MSPS program with a grade of B- or better.

Code	Title	Hours
PHCL 5700	Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology	3
PHCL 5720	Pharmacology II: Endocrine And Cns Pharmacology	3
PHCL 5730	Toxicology I	3
PHCL 6700	Pharmacology III: Cns And Cardiovascular/Renal Pharmacology	3

For the combined BS/MS program, the BSPS internship must be completed in the summer between the P1 and P2 years since BS/MS students begin MS level work during the P2 year. To fulfill both the internship and degree credit requirements, the internship must be taken for 9-12 credits during this summer. The student must complete the internship and the MS thesis with the same supervisor. This allows ideas and training from the internship to facilitate work in the MS portion of the program.

BS/MS students take 9 credits in the spring of the P2 year after BSPS graduation in December. The MSPS portion of the BS/MS program requires 4-6 credits in the summer term, and 9 credits in each of the following fall and spring terms, with a possible 3 credit final summer term if the thesis defense is not completed before the end of the spring term.

## Faculty

### Department of Medicinal and Biological Chemistry

**Ghassan Abushaikha**, 2021, Research Assistant Professor, B.S. in Pharmacy and B.S. in Chemistry and Pharmaceutical Technology, University of Camerino, Italy, Ph.D., University of Pisa, Italy

**Susanne Nonekowski**, 2009, Distinguished University Lecturer, B.S., State University of New York College (SUNY) at Buffalo; M.S., Ph.D., University of Michigan

**Steven M. Peseckis**, 1994, Associate Professor, Director of College Honors Program, B.S., Dartmouth College; Ph.D., Massachusetts Institute of Technology

**Erin G. Prestwich**, 2016, Assistant Professor, B.A., Wellesley College; Ph.D., Boston College

**Isaac T. Schiefer**, 2013, Professor and Director, Center for Drug Design and Development, B.S., The University of Toledo; Ph.D., University of Illinois at Chicago

**Zahoor Ahmad Shah**, 2009, Professor and Vice-Chair, B.S., University of Kashmir; M.S., Ph.D., Hamdard University

**James T. Slama**, 1991, Professor and Director of BSPS Program, A.B., Cornell University; Ph.D., University of California, Berkeley

**L.M.V. Tillekeratne**, Professor, D.Phil., Oxford University

**Hermann Von Grafenstein**, 2002, Associate Professor, M.S., M.D., Ludwig Maximilian University; Ph.D., Max Planck Institute of Biochemistry, Munich and the University of Konstanz

**Katherine A. Wall**, 1991, Professor and Chair, B.S., Montana State University; Ph.D., University of California, Berkeley

### JOINT APPOINTMENTS

**Bina Joe**, 2001, Distinguished University Professor, B.S., M.S., and Ph.D., University of Mysore, Mysore Karnataka, India

**Jon R. Kirchhoff**, 1997, Distinguished University Professor, B.A., State University of New York – Cortland; Ph.D., Purdue University

**William S. Messer Jr.**, 1985, Professor, B.S., Springfield College; M.S., Ph.D., University of Rochester

**Youssef Sari**, 2010, Professor, B.S., Denis Diderot University; M.S., Orsay University; Ph.D., Pierre and Marie Curie University

### EMERITUS FACULTY

**Paul W. Erhardt**, 1994, Distinguished University Professor Emeritus, B.A., Ph.D., University of Minnesota

**Channing L. Hinman**, 1985, Associate Professor Emeritus, B.S., Brigham Young University; Ph.D., University of California-Los Angeles

**Wayne P. Hoss**, 1985, Professor Emeritus, B.S., University of Idaho; Ph.D., University of Nebraska

**Richard A. Hudson**, 1985, Professor Emeritus, B.A., Kalamazoo College; Ph.D., University of Chicago

**Marcia F. McNerney**, 1991, Distinguished University Professor Emerita and Associate Dean for Research and Graduate Programs, B.A., University of Connecticut; M.S., Case Western University; Ph.D., University of Michigan

### Department of Pharmacology and Experimental Therapeutics

**Wissam AbouAlaiwi**, 2014, Professor, B.S. Lebanese University; M.S. American University of Beirut; Ph.D. The University of Toledo

**F. Scott Hall**, 2014, Professor, B.A. Harvard College; Ph.D. Cambridge University

**William S. Messer Jr.**, 1985, Professor, B.S., Springfield College; M.S., Ph.D., University of Rochester

**Ana Maria Oyarce**, 2008, Associate Lecturer, B.S., University of Concepcion; M.S., Ph.D., Georgetown University

**Youssef Sari**, 2010, Professor, B.S., Denis Diderot University; M.S., Orsay University; Ph.D., Pierre and Marie Curie University

**Caren Steinmiller**, 2008, Distinguished University Lecturer, B.A., M.S.P.S., The University of Toledo; Ph.D., Wayne State University

**Frederick E. Williams**, 2002, Professor, Department Chair, B.S., University of Michigan; M.H.S., Grand Valley State University; Ph.D., Medical College of Ohio

### JOINT APPOINTMENTS

**Zahoor Ahmad Shah**, 2009, Associate Professor, B.S., University of Kashmir; M.S., Ph.D., Hamdard University

**Hermann Von Grafenstein**, 2002, Associate Professor, M.S., M.D., Ludwig Maximilian University; Ph.D., Max Planck Institute of Biochemistry, Munich and the University of Konstanz

### EMERITUS FACULTY

**Kenneth A. Bachmann**, 1973, Distinguished University Professor Emeritus, B.S. Pharm., Ph.D., The Ohio State University; R.Ph.

**Donald B. White**, 1995, Professor Emeritus, B.S., University of California - Los Angeles; M.S., Ph.D., University of California - Irvine

## Department of Pharmacy Practice

**Sarah M. Aldrich Renner**, 2018, Associate Lecturer, Pharm.D., Ohio Northern University; BCACP

**Gabriella Baki**, 2014, Associate Professor, MA, PhD., Pharm.D., University of Szeged, Hungary

**Mariann D. Churchwell**, 2005, Professor, B.S. Pharm., Pharm.D., Wayne State University; BCPS

**Marilee D. Clemons**, 2018, Associate Lecturer, Pharm.D., Shenandoah University; BCACP

**Katlyn R. DeVries**, 2022, Assistant Lecturer, B.S. Biochemistry and Chemical Biology, Wayne State; Pharm.D. University of Michigan; BCCP

**Katelyn M. Dulgar**, 2022, Assistant Lecturer, Pharm.D., The University of Toledo

**Monica G. Holiday-Goodman**, 1988, Professor and Associate Dean for Student Affairs and Diversity and Inclusion, B.S. Pharm., Ph.D., Northeast Louisiana University

**Mitchell S. Howard**, 2018, Associate Lecturer, Assistant Director of Pharm.D. Experiential Education, Pharm.D., The University of Toledo; MBA, BCACP

**Megan A. Kaun**, 2006, Senior Lecturer, Director of Pharm.D. Experiential Education, Pharm.D., The University of Toledo; BCPS, BCACP

**Virender Kumar**, 2023, Assistant Professor, B. Pharm., M. Pharm., Guru Jambheshwar University; M. Science., St John's University, NY; PhD., University of Nebraska Medical Center

**Aaron J. Lengel**, 2008, Assistant Professor, Pharm.D., The University of Toledo; BCACP

**Loulwa Maktabi**, 2021, Visiting Assistant Lecturer, Pharm.D., The University of Toledo; BCPS

**Julie A. Murphy**, 2012, Associate Professor, Associate Dean for Academic Affairs, B.S. Pharm., Pharm.D., The University of Toledo; BCPS, FASHP, FCCP

**Jerry Nesamony**, 2008, Professor, B. Pharm., M. Pharm., Medical College, University of Kerala; Ph.D., The University of Louisiana at Monroe

**Martin J. Ohlinger**, 2000, Clinical Professor and Chair; Distinguished University Lecturer, B.S., College of William and Mary; B.S. Pharm, Pharm.D., Virginia Commonwealth University/MCV; BCCCP, FCCM

**Michael J. Peeters**, 2005, Senior Lecturer, Director of Interprofessional Education, B.S. Pharm., University of Alberta; Pharm.D., University of Washington; M.Ed., Ph.D., The University of Toledo; BCPS, FCCP, FNAP

**Justin P. Reinert**, 2022, Assistant Professor, Pharm.D., South College School of Pharmacy; MBA, BCCCP

**Eric G. Sahloff**, 2003, Associate Professor, B.A., B.S. Pharm., Pharm.D., The University of Toledo; AAHIVP

**Kimberly A. Schmude**, 2002, Senior Lecturer, B.S. Pharm., Pharm.D., The University of Toledo

**Michelle N. Schroeder**, 2012, Associate Professor, Director of Assessment, Pharm. D., Ohio Northern University; BCACP, CDCES

**Michelle L. Seegert**, 2010, Senior Lecturer, Associate Dean of Admissions & Enrollment Management, Pharm.D., The University of Toledo; BC-ADM, BCACP

**Varun A. Vaidya**, 2009, Professor, B.S. Pharm., Bharati Vidyapeeth College of Pharmacy; Ph.D., University of Tennessee

**Alison Wery**, 2022, Assistant Lecturer, MS, University of Cincinnati

### Emeritus faculty

**Kenneth S. Alexander**, 1972, Professor Emeritus, Ph.D., University of Rhode Island

**Curtis D. Black**, 1990, Professor Emeritus, Ph.D., Purdue University

**Diane M. Cappelletty**, 2001, Professor Emerita, B.S. Pharm., Pharm.D., The Ohio State University

**Laurie S. Mauro**, 1985, Professor Emerita, B.S. Pharm., Ohio Northern University; Pharm.D., The Ohio State University

**Vincent F. Mauro**, 1985, Professor Emeritus, B.S. Pharm., Ohio Northern University; Pharm.D., The Ohio State University; FCCP

**Mary F. Powers**, 2002, Professor Emerita, B.S. Pharm., The University of Toledo; Ph.D., Medical College of Ohio

# Jesup Scott Honors College

## 2024-2025 Academic Year

Scott Hall 0111-0133  
 MS 504  
 419.530.6030  
 Honors@UToledo.edu (honors@utoledo.edu)

### Mission Statement

The Jesup Scott Honors College offers enhanced academic and experiential learning opportunities to highly motivated and talented students in all of the undergraduate colleges at The University of Toledo. The Honors College provides a nurturing and challenging higher education experience within a collaborative and discussion-based environment that is conducive to growth and discovery in an atmosphere of intellectual rigor and diversity.

### Contacts

**Josh Martin, M.A.**  
 Assistant Director of the Honors Experience  
 Scott Hall 0127  
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 Joshua.Martin2@UToledo.edu (joshua.martin2@utoledo.edu)

**Kasey A Tucker-Gail, PhD**  
 Program Director  
[Kasey.Tucker@utoledo.edu](mailto:Kasey.Tucker@utoledo.edu)

**Jamie Lefevre**  
 Student Programming Coordinator  
 Scott Hall 0117  
 Phone: 419.530.6182  
 Jamie.Lefevre@UToledo.edu (jamie.lefevre@utoledo.edu)

### Office of Competitive Fellowships

Competitive Fellowships are open to all students and faculty at UToledo.  
 Competitive Fellowships Office: Scott Hall 0125  
 Competitive Fellowships Web site: <http://www.utoledo.edu/honors/competitive-fellowships/>  
 E-mail: [Competitivefellowships@UToledo.edu](mailto:Competitivefellowships@UToledo.edu)  
 (competitivefellowships@utoledo.edu)

**Chessica Oetjens, M.A.**  
 Program Manager, Offices of Competitive Fellowships and Undergraduate Research  
 Phone: 419.530.4764  
 Chessica.Oetjens@UToledo.edu (chessica.oetjens@utoledo.edu)

### Office of Competitive Fellowships Mission Statement

The University of Toledo's Office of Competitive Fellowships is committed to guiding students through the rigorous process of applying for prestigious scholarly experiences. Opportunities are available in all fields and disciplines.

### STUDENT SUPPORT

The University of Toledo aims to actively support students in a variety of opportunities for scholarly experiences. We invite you to explore awards for which you may be eligible and connect with us for support. We are here to help guide you through the application process.

Our office offers support with the following awards:

- Boren Scholarship
- Critical Language Scholarship
- Fulbright Scholarship
- Gates Cambridge Scholarship
- Benjamin A. Gilman Scholarship
- Barry Goldwater Scholarship
- National Oceanic and Atmospheric Administration Ernest F. Hollings Scholarship
- James Madison Scholarship
- Marshall Scholarship
- George J. Mitchell Scholarship
- Charles B. Rangel International Affairs Fellowship
- Rhodes Scholarship
- Tillman Scholarship
- Harry S. Truman Scholarship
- Morris Udall Scholarship

### How to Apply to the Jesup Scott Honors College

Do you want to challenge yourself and develop skills as a thinker, leader, and researcher? Consider applying to the Honors College, UToledo's premier academic experience for highly motivated students.

We accept students from all academic colleges and majors. You can still graduate on time if you enroll in the Honors College.

The benefits of Honors include:

- Specialized Honors courses that offer small group and discussion-based learning
- Focus on critical thinking about real-world issues
- Courses in your major with an enhanced Honors scope
- Priority registration
- Faculty mentorship
- Honors experiential learning grants
- Professional growth and networking
- Study abroad and research opportunities
- Social activities.

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### ARE YOU A PROSPECTIVE UTOLEDO STUDENT?

1. Check out our academic requirements:



- **A 3.5 high school GPA**

NOTE: If your high school GPA falls just below the 3.5 threshold, we encourage you to still apply to Honors. You will have an opportunity to detail any circumstances that might have shaped your high school GPA in our extended review process.

- **Extracurricular achievements**

Academic credentials are only part of the story. You will be invited to share information about your:

- High school leadership
- Work experience
- Awards and achievements
- Efforts to be an agent of change in your community.

## 2. Submit Honors College application.

Have you already submitted your UToledo application or Common App?

**Yes.** The UToledo application and the Common App ask if you are interested in applying to the Honors College and include the Honors application. If you did not complete the Honors application there, e-mail [honors@utoledo.edu](mailto:honors@utoledo.edu) and we will send you the application link.

**No.** Complete the online UToledo application (<https://www.utoledo.edu/admission/apply/now/>) or the Common App. When asked whether you are interested in applying to the Honors College, check "yes" and complete the prompts.

Our short application includes an essay of 400-500 words on the following topic: "Reflect on a time when you challenged a belief or idea. What prompted you to act? Would you make the same decision again?"

## 3. You will be notified by e-mail as soon as your application to the Honors College is processed.

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## ARE YOU A CURRENT UTOLEDO STUDENT?

To apply to the Honors College, you need to fulfill the following requirements:

- Earn a cumulative UToledo GPA of at least a 3.3
- Have completed your first semester of UToledo coursework, earning no more than 60 credit hours.

## How to Apply

Contact us at [honors@utoledo.edu](mailto:honors@utoledo.edu). We will send you the Honors College application link for current students.

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## ARE YOU A TRANSFER STUDENT?

To apply to the Honors College, you need to fulfill the following requirements:

- Earn a cumulative college GPA of at least a 3.3
- Have the time to complete all Honors coursework – which means you will need to be enrolled in at least four semesters at UToledo before graduation.

## How To Apply

Contact us at [honors@utoledo.edu](mailto:honors@utoledo.edu). We will send you the Honors College application link for incoming students.

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## QUESTIONS?

Contact us at [honors@utoledo.edu](mailto:honors@utoledo.edu).

## Academic Policies

Students are subject to the general regulations that apply to all students enrolled in The University of Toledo. Refer to the **UToledo Policy website** (<http://www.utoledo.edu/policies/>) for academic policies that apply to all students. (<http://www.utoledo.edu/policies/>)

### LIST OF UNDERGRADUATE ACADEMIC POLICIES found at the above web address.

3364-71-01 Academic standing

- 3364-71-01.1 Academic standing procedure
- 3364-71-02 Enrollment status: full time, part time, and audit
- 3364-71-03 Class rank
- 3364-71-04 Academic dishonesty
- 3364-71-05 Academic grievance

- 3364-71-05.1 Academic grievance procedure
- 3364-71-06 Academic forgiveness

- 3364-71-06.1 Academic forgiveness procedure
- 3364-71-07 Repeating a course and calculating GPA
- 3364-71-08 Adding and/or dropping a course
- 3364-71-09 Dual degrees
- 3364-71-10 Residency requirement for a degree
- 3364-71-11 Grades and grading
  - 3364-71-11.1 Grades, quality points and grading procedures
- 3364-71-12 Priority registration
- 3364-71-13 Graduation with honors distinction; Dean's list; President's list
- 3364-71-14 Missed class policy
- 3364-71-15 Confidentiality of student records (FERPA)
- 3364-71-16 Administrative adjustment for extenuating circumstances
- 3364-71-17 Credit for prior learning



- 3364-71-18 Veteran and service members support and assistance
- 3364-71-19 Posthumous degree awards
- 3364-71-20 International baccalaureate diploma
- 3364-71-21 Diploma replacement
- 3364-71-22 Semester academic calendar and academic year
- 3364-71-23 Academic credit hour
- 3364-71-24 Military veterans benefits management
- 3364-71-25 Independent study courses
- 3364-71-26 Internal surveys
- 3364-71-27 Classroom attendance
- 3364-71-28 The University of Toledo SROTC housing financial offset incentive policy
- 3364-71-29 Guidelines on authorship policy
- 3364-71-30 Religious accommodations
  - 3364-71-30.01 Procedure - religious accommodations
- 3364-72-54 Assessment of student learning

## Honors College Policies

**GPA Warning & Ineligibility Policy:** This policy enforces the expectations the JSHC holds for Honors students relative to the UToledo cumulative GPA. It outlines steps that will be taken for students with grades that threaten their ability to earn College Honors by the time of graduation. In short, first-year and sophomore Honors students are expected to maintain at least a 2.75 whereas junior and senior Honors students are expected to maintain at least a 3.0. This policy is enforced by the Honors College after each Fall and Spring semester.

**Curricular Good-Standing Policy:** This policy defines satisfactory curricular progress toward the Honors medallion as well as a timeframe for review. These guidelines for taking "HON" core courses and earning Honors credits are established relative to the student's degree-granting college and are enforced by those units in coordination with the Honors College each Summer.

## Jesup Scott Honors College Program

In order to graduate with the Honors College medallion, a student must:

- Complete all requirements for an approved degree program within the degree-granting college of his or her major.
- Complete a minimum of 33 semester hours of Honors courses (or 27 semester hours for students entering UT in Fall 2018 and later).
  - Honors courses are of two kinds:
    - those offered by the Honors College and
    - those offered by various departments and degree-granting colleges.
- Of the 33 (or 27) hours required, three semester hours of Ideas and Society (HON 1010) must be completed by all Honors College students.
- Depending on the student's degree-granting college, entering term at UT (before Fall 2018 or after), and chosen curricular track (see below), the remaining Honors hours may include:
  - a. HON 1020 (Innovation and Society)
  - b. HON 2010 (Multicultural Toledo) or HON 2020 (Multicultural Literatures: The North American Experience) or HON 2030 (Multicultural Literatures: The Non-European World).

- c. One or two Honors upper-division courses, including HON 3010 (Community Engagement) and/or interdisciplinary seminars offered through the Honors College (HON 4950 and HON 4960).
  - d. Honors sections of general education courses.
  - e. Honors sections of courses offered in the student's major.
  - f. Non#Honors courses contracted with the course instructor for Honors credit through use of an Honors Learning Contract (<https://www.utoledo.edu/honors/learning-contracts.html>).
- Earn a minimum overall UT GPA of 3.3 (a major GPA higher than a 3.3 may be required by the department and a higher cumulative GPA may be required by the student's degree-granting college or department).
  - Complete an Honors thesis or capstone project.
  - Complete any additional requirements for Honors set by the major department or college of the major.

\* For a definitive listing of the JSHC requirements by degree-granting college and entering term at UToledo, see the tables at the bottom of this page. Honors students can select between two curricular tracks offered by their degree-granting college to earn the medallion. The "Blue track" is designed for students in pre-professional programs with less flexibility for taking HON core courses whereas the "Gold track" is designed for students interested in and able to take a more traditional, liberal arts Honors curriculum. Students pursuing the "Gold track" must also satisfy the "Blue track" requirements for their degree-granting college.

## Honors College Learning Contracts

Through an Honors Learning Contract (<http://www.utoledo.edu/honors/learning-contracts.html>), an instructor and a student agree on a more intensive and extensive exploration of course material in a non#Honors course. By successfully fulfilling the agreement (and other requirements) spelled-out in the Honors Learning Contract, the student will receive Honors credit for the course. This is marked on the student's transcript as such after the completion of the semester when the Honors College verifies the student earned at least a final grade of a "B" in the course and that the submitted work for the Contract received all relevant approvals.

## Honors College Thesis/Capstone

The Honors thesis/capstone (<https://www.utoledo.edu/honors/thesis-capstone.html>) represents a body of research personally selected by each Honors student that is developed in close consultation with a faculty mentor of their choosing. The work should represent a culmination of the student's academic training and often functions as an introduction to their professional career or the pursuit of an advanced degree begun after graduation. The thesis/capstone is due by the end of the student's final undergraduate semester, but the timeframe of the work as well as the presence of any integrated courses varies across majors.

## Jesup Scott Honors College Diploma Requirements by Degree-Granting College

### New Curriculum (for Fall 2018 and later Admits) - BLUE TRACK

	A&L	BUS	ENG	HHS	JHCOINSM	NUR	PHM	UC
Ideas and Society	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Innovation and Society	Option	Option	Option	Option	Option	Option	Option	Optional
Multicultural Courses <sup>1</sup>	Choose One	Need 2010	Need 2010	Need 2010	Need 2010	Choose One	Need 2010	Choose One



Upper-level Courses <sup>2</sup>	Choose One	Need 3010	Need 3010	Need 3010	Need 3010	Choose One	Choose One	Need 3010	Choose One
Total Honors Hours	27	27	27	27	27	27	27	27	27
Thesis or Capstone Project	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Minimum Cumulative GPA	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Additional Requirements by College/Dept.	Yes (Dept. Hon.)	Yes (Dept. Hon.)	Yes	Yes	No	Yes (Dept. Hon.)	Yes	Yes (Dept. Hon.)	Yes (Dept. Hon.)

<sup>1</sup> HON 2010, HON 2020, HON 2030

<sup>2</sup> HON 3010, HON 4950, HON 4960

**New Curriculum (for Fall 2018 and later Admits) - GOLD TRACK**

	A&L	BUS	ENG	HHS	JHCOE	NSM	NUR	PHM	UC
Ideas and Society	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Innovation and Society	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multicultural Courses <sup>1</sup>	Choose One	Need 2010	Need 2010	Need 2010	Need 2010	Choose One	Need 2010	Need 2010	Choose One
Upper-level Courses <sup>2</sup>	Choose Two	3010 & Semin	3010 & Semin	3010 & Semin	3010 & Semin	Choose Two	Choose Two	3010 & Semin	Choose Two
Total Honors Hours	27	27	27	27	27	27	27	27	27
Thesis or Capstone Project	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Minimum Cumulative GPA	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Additional Requirements by College/Dept.	Yes (Dept. Hon.)	Yes (Dept. Hon.)	Yes	Yes	No	Yes (Dept. Hon.)	Yes	Yes (Dept. Hon.)	Yes (Dept. Hon.)

<sup>1</sup> HON 2010, HON 2020, HON 2030

<sup>2</sup> HON 3010, HON 4950, HON 4960

**A&L:** College of Arts & Letters, **BUS:** College of Business and Innovation, **ENG:** College of Engineering, **HHS:** College of Health and Human Services, **JHCOE:** Judith Herb College of Education, **NSM:** College of Natural Sciences and Mathematics, **NURS:** College of Nursing, **PHM:** College of Pharmacy and Pharmaceutical Sciences, **UC:** University College

# Jesup Scott Honors College Courses

## HON 1010 Ideas and Society

[3 credit hours]

Through a process of critical examination, analytical thought, and intellectual exchange, students engage in study of ideas in society during different time periods and across different cultural contexts and intellectual disciplines. Drawing upon primary and secondary sources using multiple humanities discourses, students analyze and evaluate and respond to diverse populations and perspectives. From this synthesis, students gain ability to apply understanding of ideas in contemporary society as well as ideas in their fields of study.

**Term Offered:** Spring, Summer, Fall  
Core Arts & Humanities

## HON 1020 Innovation and Society

[3 credit hours]

In this interdisciplinary course, students will analyze and critique various processes of innovation in society with an emphasis on its impact on human society. Students will gain the ability to evaluate course concepts against competing approaches and solutions in society, as well as in their own fields of study.

**Term Offered:** Spring, Fall  
Core Arts & Humanities

## HON 2010 Multicultural Toledo

[3 credit hours]

Multicultural Toledo is an interdisciplinary investigation into the multicultural, historical and socio-economic development of the greater Toledo area and the ways that different community groups respond to, and shape, this transformation. Topics may include: ethnicity, race, gender, gender orientation, socioeconomic class, religion, national origin, dis/ability, and age within the Toledo community. The course features multiple site visits to community organizations.

**Term Offered:** Spring, Summer, Fall  
Core Social Sciences, Multicultural US Diversity

## HON 2020 Multicultural Literatures: The North American Experience-Honors-WAC

[3 credit hours]

This reading, writing and discussion course examines selected literatures of the North American experience: for example, texts by African American, Arab American, Asian American, Hispanic or Native American authors.

**Term Offered:** Spring, Fall  
Core Arts & Humanities, Multicultural US Diversity, OT36 Arts and Humanities

## HON 2030 Multicultural Literatures: The Non-European World-Honors-WAC

[3 credit hours]

This reading, writing and discussion course examines selected non-European literatures.

**Term Offered:** Spring, Fall  
Core Arts & Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

## HON 2990 Independent Study

[1-5 credit hours]

Supervised independent study.

**Term Offered:** Spring, Summer, Fall

**HON 3010 Community Engagement**

[3 credit hours]

This research intensive, interdisciplinary course is designed to provide students with experience in effective community engagement through work on a local issue or problem in a mentored, multidisciplinary team. Class will focus on developing practical skills, identifying best practices, and exploring potential solutions for complex problems. The course culminates in a grant proposal that can be adopted or adapted by our community partners. Class time consists of short instructional presentations, group work, and class discussions.

**Prerequisites:** HON 2010 with a minimum grade of D- or HON 2020 with a minimum grade of D- or HON 2030 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**HON 4950 Honors Seminar**

[3 credit hours]

These interdisciplinary seminars are organized around a variety of subjects and intellectual concerns.

**Term Offered:** Fall

**HON 4960 Honors Seminar**

[3 credit hours]

These interdisciplinary seminars are organized around a variety of subjects and intellectual concerns.

**Term Offered:** Spring

**HON 4990 Independent Study**

[1-5 credit hours]

Supervised independent study.

**Term Offered:** Spring, Summer, Fall

## Office of Undergraduate Research

Undergraduate Research programs are open to all undergraduate students at UToledo.

Undergraduate Research Office: Scott Hall 0125

Undergraduate Research Web site: <http://www.utoledo.edu/honors/>  
[undergradresearch/](http://www.utoledo.edu/honors/undergradresearch/) (<http://www.utoledo.edu/honors/undergradresearch/>)

E-mail: [Undergraduate.Research@UToledo.edu](mailto:Undergraduate.Research@UToledo.edu)  
[undergradresearch@utoledo.edu](mailto:undergradresearch@utoledo.edu)

**Chessica Oetjens, M.A.**

Program Manager, Offices of Competitive Fellowships and Undergraduate Research

Phone: 419.530.4764

[Chessica.Oetjens@UToledo.edu](mailto:Chessica.Oetjens@UToledo.edu) ([chessica.oetjens@utoledo.edu](mailto:chessica.oetjens@utoledo.edu))

## UNDERGRADUATE RESEARCH Mission Statement

The Office of Undergraduate Research provides meaningful research opportunities for all UToledo undergraduate students. We accomplish this mission by being a resource for faculty members to increase undergraduate involvement in their research and by aiding in the integration of a research component to existing courses and/or development of new research-intensive courses.

## Primary Objectives of UNDERGRADUATE RESEARCH

- Be a focal point for research opportunities for undergraduates.
- Be an advocate for increased funding of undergraduate research at UToledo.
- Showcase research accomplishments of UToledo undergraduates.
- Be a resource for faculty members to increase undergraduate involvement in their research.
- Be a resource for the community and local industries to increase their involvement in undergraduate research.
- Aid in the integration of a research component to existing courses and/or development of new research-intensive courses.
- Coordinate undergraduate research involvement with the other offices at UToledo, including: the Office of Research and Sponsored Programs, the Jesup Scott Honors College, Rocket Career Center, the various degree-granting colleges, and the various departments and/or academic programs.

**Research programs** overseen by the Office of Undergraduate Research that provide funding to undergraduate students include:

- Academic Year Research Program (AYRP)
- First-Year Summer Research Experience (FYSRE)
- Research Travel Grant Program
- Undergraduate Summer Research and Creative Activity Program (USRCAP)

**Courses** associated with the Office of Undergraduate Research include:

**UGR 2980 Issues in Research and Scholarship**

[1 credit hour]

Seminar series addressing various issues that can arise in research, scholarship, and creative activities, including: safe laboratory practices, regulatory compliance issues, and ethics issues.

**Term Offered:** Summer

**UGR 4910 Undergraduate Research Experience**

[0 credit hours]

Undergraduate students will participate in directed research, scholarship, or creative activities with faculty mentors.

**Term Offered:** Spring, Summer, Fall

## John B. and Lillian E. Neff College of Business and Innovation

### Undergraduate Catalog 2024-2025

Stranahan Hall and Savage & Associates Business Complex

419.530.2558

[CoBusiness@UToledo.edu](mailto:CoBusiness@UToledo.edu) ([CoBusiness@UToledo.edu](mailto:CoBusiness@UToledo.edu))

#### Mission Statement

The John B. and Lillian E. Neff College of Business and Innovation provides innovative and relevant learning experiences and engages in high quality research and teaching to prepare students to become life-



long, ethical business and academic leaders who are prepared for global challenges.

We accomplish this by:

- Preparing our students to create innovative solutions to relevant business problems
- Helping our students to understand and make ethical choices
- Connecting our students with organizations to help begin and advance their careers
- Engaging in a faculty-driven process to identify and support publishing in high-impact research outlets
- Mentoring faculty, collaboration with colleagues inside and outside of COBI, and providing a formal peer feedback process to improve teaching and research
- Engaging and involving the regional and international business community in opportunities for student experiential learning, career exploration and development, consulting, and research projects
- Engaging business and alumni advisory boards and focus groups to develop and improve curricula and programs

## Contacts

### Administration

**Dr. Dr. Anne L. Balazs, Dean**  
419.530.4612

**Dr. Terribeth Gordon-Moore, Senior Associate Dean and Director of Undergraduate Programs and Administration**  
419.530.4376

**Dr. Bashar S. Gammoh, Associate Dean of Graduate Programs and Research**  
419.530.2091

**John Anderson III, Marketing, Communications and Promotion Specialist**  
419.530.4032

**Sandra Whitman, Administrative Assistant - Office of Dean**  
419.530.5426

### Academic Departments

**Accounting** 419.530.2277  
Interim Chair: Dr. Heba Abdel-Rahim, 419.530.2224

**Applied Organizational Technology** 419.530.3246  
Chair: Mary Humphrys, 419.530.3077

**Finance** 419.530.2277  
Dr. Kainan Wang, 419.530.4317

**Information Operations Technology Management** 419.530.2420  
Chair: Dr. Paul Hong, 419.530.2054

**Marketing and International Business** 419.530.2098  
Chair: Dr. Laurence Fink, 419.530.2266

**Management** 419.530.2366

Chair: Dr. Laurence Fink, 419.530.2266

### Academic Support Services Office of Student Retention and Academic Success (Student Services)

Savage & Associates Business Complex Suite 3130  
Phone: 419.530.2087  
COBIadvising@utoledo.edu

**Jennifer Tharpe, Director of Student Academic Success**

**Drew Enderle, Academic Advisor**

**Brittany Kim, Academic Advisor**

**Whitney Valencia, Academic Advisor**

**Sandra Stockard, Secretary**

### Study Abroad

**Deborah Krohn, Study Abroad Specialist**  
Deborah.krohn@utoledo.edu (darlene.stevens@utoledo.edu)

### Business Career Programs (BCP)

Savage & Associates Business Complex Suite 4120  
Phone: 419.530.5400  
businesscareers@utoledo.edu

**Dr. Terribeth Gordon-Moore, Senior Associate Dean and Director of Undergraduate Programs and Administration**  
Terribeth.gordon@utoledo.edu

**Craig Turner, Career Advisor & Employer Relations**  
craig.turner@utoledo.edu

**Alison Devolder, Secretary 2**  
alison.devolder@utoledo.edu

## Degrees Offered

### Bachelor of Business Administration (BBA)

The Bachelor of Business Administration (BBA) undergraduate curriculum includes a broad liberal arts background, a general core of business courses, and a specific area of specialization. Students must select at least one of the ten area of specializations listed below.

- Accounting (p. 518)
- Entrepreneurship and Innovation (p. 540)
- Finance (p. 529)
- Management (p. 542)
- Human Resource Management (p. 541)
- Information Systems (p. 534)
- Marketing (p. 549)
- Operations & Supply Chain Management (p. 536)

- Organizational Leadership and Management (p. 545)
- Professional Sales (p. 551)

### Areas of Specialization / Majors

Students must take a minimum of 10 courses between their area of specialization/major and either a business minor, second specialization or other 3000/4000 level business electives. Courses in the area of specialization may consist of required and/or elective courses and an internship opportunity.

Students should consult their degree audit for specific degree and major requirements. Students wishing to complete 2-3 Neff COBI majors may only double count up to 2 courses in their majors. Only one BBA will be awarded.

## Bachelor of Applied Organizational Technology (BAOT) (p. 515)

The Bachelor of Applied Organizational Technology (BAOT) program is a 2+2 completion degree for students with a technical associate degree. It includes a general business focus as well as general education and higher-level non-business coursework. Some students elect to include a minor from outside the college of business as part of their degree requirements. Students may also complete a business minor in addition to required courses. All transfer students must have a minimum GPA of 2.25 and have completed a technical associate degree to be accepted into the Neff College of Business and Innovation for the bachelor of applied organizational technology. Transfer students' admission will be determined by the higher education (HEd) grade point average. The HED GPA is based on all letter grades attained at all institutions of higher learning and uses the point average scale of "A" equaling four points.

### Associate Degree Programs

- AA Pre-Business Administration (p. 524)
- AAB Computer Network Administration (p. 525)
- AAB-Business Management Technology (p. 526)
- ATS Technical Studies (p. 526) - General as well as a Graphic Design option. Only one degree in Technical Studies will be awarded.

### transcripted certificate

- Digital Communication Applications Certificate (p. 528)
- Cannabis Management, Certificate (p. 517)
- Consultative Sales, Post Baccalaureate Certificate (p. 553)

## Workplace Certificates – Non-Degree Granting Programs (p. 561)

While not an official academic designation on a transcript, these workplace certificates have credit-bearing courses which appear on an official transcript and give added value to career goals. Coursework may also be applied to future degree programs. Review of these scenarios must be discussed with a COBI academic advisor.

If a student is not in another degree-granting program at the University of Toledo, they will need to apply to UToledo as a non-degree student in order to enroll in the courses. Students must meet pre-requisites to take all courses including junior standing for the Financial Planning the certificate. Post baccalaureate workplace certificates (noted below) are designed for those students who have already completed a bachelor degree of some kind.

- Business Management Technology
- Computer Network Administration
- Computer Software Specialist
- Digital Marketing (Post Baccalaureate) Workplace Certificate
- Financial Planning
- Information Services and Support
- Programming and Software Development
- Web Design
- Consultative Sales (post baccalaureate)

## Accreditation

The University of Toledo John B. and Lillian E. Neff College of Business and Innovation Bachelor of Business Administration (BBA) is fully accredited at the undergraduate level by The Association to Advance Collegiate Schools of Business (AACSB International). The Accounting Program has also received additional AACSB accreditation. The graduate programs are accredited by the AACSB as well.

## Admission Requirements/Policies

### General Requirements

#### Bachelor of Business Administration (BBA)

To be admitted to the Bachelor of Business Administration program (BBA) at The University of Toledo, students need:

- a minimum 2.80 cumulative high school grade point average (GPA) or
- a minimum 25 ACT composite /1150 SAT composite (older version taken prior to March 2016) or 1220 SAT composite (newer version taken March 2016 or after) **or** a GED average score of 510 (2002 format)/710 (2014 format).

Students who do not qualify for direct admission into the College of Business and Innovation BBA may be admitted to the Associate of Arts, AA, pre-business degree program. The AA PREB program is a 2+2 program with the Bachelor of Business Administration degree, but students may move into the BBA program any time after they have earned a 2.4 UT GPA.

#### Bachelor of Applied Organizational Technology (BAOT)

Students must have an earned technical associate degree and a minimum GPA of 2.25 to be admitted to the Bachelor of Applied Organizational Technology at The University of Toledo. Transfer students' admission will be determined by the higher education (HEd) grade point average. The HED GPA is based on all letter grades attained at all institutions of higher learning and uses the point average scale of "A" equaling four points.

## Associate Degree Programs

To be admitted to an associate degree program in the College of Business and Innovation at The University of Toledo, students need:

- a minimum 2.00 cumulative high school grade point average (GPA) **or**
- a minimum 18 ACT composite /870 SAT composite (older version taken prior to March 2016) **or** 950 composite (newer version taken after March 2016) **or**
- a passing GED average score of 480 (2002 format)/600 (2014 format).

Students who do not qualify for admission to the College of Business and Innovation will be admitted to the University of Toledo University College and may transfer to the College of Business and Innovation when the minimum requirements are met.

## Admission to Divisions - BBA

The qualifications for admission to the undergraduate degree program and to the upper division, the prerequisites for courses, and all other requirements apply equally to full-time, part-time and transfer students. For purposes of internal admissions, the College of Business and Innovation has the following divisions:

1. **The Lower Division** – Students admitted to the BBA enter this division upon admission to the University and to the college. In the lower division, students complete the pre-professional business and University Core/General Education Classes.
2. **The Upper Division** – Undergraduate students in the BBA apply for admittance to the upper division also known as the professional division or sequence when their earned hours plus their registered hours total at least 60 hours. In addition to the 60 hours, a student must have earned a minimum GPA of 2.25 in the following courses as well as an overall minimum GPA of 2.25. A student not meeting the overall standards but with a cumulative GPA of 2.0 upon appeal, will be reviewed by the college admission committee for admission to the upper division on an individual basis. Students may officially declare their major or area of specialization when applying to the upper division.

Code	Title	Hours
BUAD 1010	Introduction To Business	3
BUAD 1020	Micro-Computer Applications In Business	3
BUAD 2020	Information Technology Management	3
BUAD 2030	Executive Communication Essentials	3
BUAD 2040	Financial Accounting Information	3
BUAD 2050	Accounting For Business Decision-Making	3
BUAD 2060	Business Statistics	3
BUAD 2070	Business Analytics	3
BUAD 2080	Global Environment Of Business	3

Students wishing to major in accounting have additional requirements which must be met to enter this major/area of specialization. To be admitted to the accounting area of specialization and to register for ACCT 3100 and ACCT 3110 students must earn a minimum GPA of 2.750 in the introductory-level college accounting courses, including a grade of C (2.0) or higher in both BUAD 2040 and BUAD 2050 or equivalent courses, and an overall higher education minimum GPA of 2.750 in all

prior college level courses. Any appeals are reviewed by the Accounting Department.

## Transfer / Change of College Admission Requirement

All transfer students must have

- a minimum GPA of 2.40 to be accepted into the College of Business and Innovation to pursue a Bachelor of Business Administration (BBA),
- a minimum GPA of 2.25 to pursue a Bachelor of Applied Organizational Technology (BAOT) and
- a minimum 2.00 GPA to pursue any associate degree in the College of Business.

Transfer students' admission will be determined by the higher education (HE) grade point average. The HE GPA is based on all letter grades attained at all institutions of higher learning and uses the point average scale of an equaling four points.

The admission of students wishing to change from another college within The University of Toledo to the College of Business and Innovation is the same as for a transfer student.

## Academic Policies

### University Policy Website (<http://www.utoledo.edu/policies/>)

The University of Toledo Policy Website is a compilation of relevant policy, operational procedures, governing documents and handbooks of The University of Toledo. The purpose of the policy website is to ensure faculty, staff, and students have ready access to policies. It is the responsibility of the UToledo community, including faculty, staff, and students, to familiarize themselves with the policies and comply with the University policies that affect them.

## Class Rank

In the John B. and Lillian E. Neff College of Business and Innovation, class rank is determined as follows:

Rank	Hours Earned
Freshman	0-29.99
Sophomore	30-59.99
Junior	60-89.99
Senior	90+

## academic advising

Students receive advising concerning their academic program from the college professional advisors located in the Office of Student Retention and Academic Success in the Savage and Associates Business Complex room 3130. Students may self-select which of the Neff COBI advisors to work with or the office will make recommendations based on need and advisor level of expertise. Advisors are cross-trained in a variety of areas so that someone is always available to answer specific questions. Appointments are available throughout the year. Students may also email general questions to the staff through [COBIadvising@utoledo.edu](mailto:COBIadvising@utoledo.edu).

Degree audits (DARS) are available in the office and online through Student Self-Service through the myUT portal Student Self-Service.

### DEGREE AUDIT REQUIREMENT (DARS)

The Degree Audit Reporting System is an automated record that contains all of a student's graduation requirements and tracks that student's progress toward meeting those requirements. Degree audits are available to students upon request from the Office of Student Retention and Academic Success and online through the myUT portal Student Self-Service. Students are encouraged to keep current degree audits for their personal use and to discuss their degree audits with their academic advisors.

## Declaring or Changing a Major and/or Minor

Forms for declaring or changing a college major and/or minor are available online at <http://www.utoledo.edu/business/StuServ/Forms.html>.

## Transfer / Change of College Degree Requirements

All Neff College of Business and Innovation degree requirements are the same for students whether or not they begin at UToledo or transfer into a program at some point.

Transfer courses will be evaluated by the Registrar's Office in conjunction with the Neff College of Business and Innovation and other related colleges after the student has submitted official transcripts from all colleges/universities attended and has been accepted by the university. Syllabi may also be required for courses that have not yet been evaluated by the university. The student must complete the evaluation process before the end of the first term of attendance at UT.

For purposes of determining the UT GPA, grades from another institution do not transfer. The GPA will be based on the course work taken while enrolled at The University of Toledo. For students transferring into the Neff College of Business and Innovation from another college within The University of Toledo, all undergraduate hours attempted and earned, as well as the GPA, will transfer. To qualify for the Bachelor of Business Administration degree, students must fulfill all Neff College of Business and Innovation course and grade requirements.

Transfer students should note The University of Toledo will not include all course work taken at other institutions of higher education in the calculation to determine if a student will graduate with honors. A student will be awarded a level of honors indicated by The University of Toledo cumulative GPA. The University of Toledo also requires a minimum of 30 semester hours of standard letter-graded courses from UToledo in order to qualify for graduation with honors.

Students must complete at least 50% of their major/area of specialization courses and 50% of business minor courses at the University of Toledo.

## Evaluation of Transfer Courses

The Neff College of Business and Innovation Office of Student Retention and Academic Success assists in the evaluation of business coursework

based on course equivalencies determined by the appropriate academic unit as coordinated through the Registrar's Office. In many cases, courses from other universities/colleges have been pre-approved for equivalency and will transfer automatically. Equivalent courses from AACSB-accredited schools also automatically transfer but they may require submission of a syllabus for confirmation. For any course that does not automatically transfer, students may submit a syllabus to the Office of Student Retention and Academic Success for the purpose of re-evaluation.

The evaluation of non-business coursework is coordinated by the Registrar's Office and completed by the appropriate corresponding college.

## Testing for Course Credit

In the Neff College of Business and Innovation, there are two distinct areas of testing for credit related to business courses:

1. testing to validate transfer or native coursework that was not applied at the desired level of credit based on accreditation or other issues for credit, and
2. testing based on knowledge earned outside the classroom as defined by the university policy on credit for prior learning.

Students who have transfer or native credit that was not initially accepted for course credit or course credit at the desired level, possibly based on accreditation issues, may pursue testing for credit based on departmental approval and test availability to hopefully validate their transfer credit to the desired level. In many departments, testing for credit is only allowed for core business courses designated by a "BUAD/Business Administration" prefix. Some departments/majors have transfer agreements in place with other Universities that set additional conditions or procedures which supersede this general college policy.

Students who feel they have significant knowledge in a core business subject area may pursue a "testing for credit" option through university procedures. Core business subject areas are limited to BUAD courses and are not major specific. Courses in the AOT department are currently not subject to these limitations and are open to any testing procedures as approved by the university. Please see the Credit By Assessment Form located on the Registrar's Office website for additional information:

**UT Policy - Credit for prior learning** (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-17%20%20Credit%20for%20Prior%20Learning%20Policy.pdf>)

**Forms:** <http://www.utoledo.edu/offices/registrar/forms.html>

There are no fees associated with the validation of transfer course credit, but university fees do apply for other testing options. **All Neff COBI testing procedures** are coordinated through the specific department chairs, the Office of Student Retention and Academic Success and the Dean's Office. Any test for a course may only be attempted once.

## Code of Student Academic Conduct and Student Academic Grievance Procedure

Issues related to charges of student academic misconduct or disputes as to final course grades, and the procedures for resolving such issues are set forth by the specific language of the COBI Code of Student Academic



Conduct and the procedures for resolution of such issues in the Neff COBI Student Academic Grievance Procedure. For non-business course grievances and in situations where a student has exhausted Neff COBI procedures but is not satisfied with the outcome, students are directed to the UT Grievance Procedure. Neff COBI Procedural guidelines are located on the college's website at <http://www.utoledo.edu/business/COBI/COBICCD/COBIStudentResources.asp>.

UT Policy - Academic Dishonesty (<http://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-04%20%20Academic%20dishonesty.pdf>)

UT Policy - Academic Grievance (<http://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-05%20%20Academic%20grievance.pdf>)

## GPA Recalculation for Repeated Courses

Effective fall 2006, if a student repeats a UToledo course and receives a higher grade, a request to delete the original grade, as long as the original course grade was lower, can be made. Prior to fall 2006, if a student repeats a UToledo course and receives a grade of C (2.0) or higher, a request to delete the original grade, as long as the original course grade was a C- or lower, can be made. If the original grade was earned because of cheating or academic dishonesty, it will not be deleted. A maximum of 18 credit hours can be deleted by university policy.

**UT Policy** - GPA Recalculation for repeated courses ([https://www.utoledo.edu/offices/registrar/student\\_records/gpa\\_recalculation.html](https://www.utoledo.edu/offices/registrar/student_records/gpa_recalculation.html))

**Forms:** <http://www.utoledo.edu/offices/registrar/forms.html>

## Residency Requirement

To earn a BBA degree from the Neff College of Business and Innovation, a student must complete at least 50 percent of their major and minor course work. The final 30 hours of the baccalaureate program must be taken in residence at UToledo by all business students (UToledo online courses satisfy this requirement). Under certain circumstances, appeals to the senior residency rule are approved for up to 15 semester hours. For associate degrees, the final 15 semester hours or a minimum 15 semester hours must be taken in residence at the University of Toledo. UT Policy - Residency Requirement (<http://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-10%20%20Residency%20requirement%20for%20a%20degree.pdf>)

## Additional Degrees / Course Work

While students may return to complete additional course work or degrees after an initial bachelor's degree is awarded, a second BBA will not be awarded if the initial degree was also a BBA or an equivalent degree in Business.

Multiple associate degrees may be awarded, but only one ATS, Technical Studies, degree will be awarded.

## Academic Probation

When a student's cumulative GPA falls below 2.0, the student is automatically placed on probation. Students are recommended to reduce

their enrolled hours and meet with an advisor to develop a plan of action to improve their GPA.

## Academic Suspension

Academic suspension means a student is not eligible to enroll in courses from The University of Toledo for a minimum period of one semester. However, students may remove work toward the completion of incompletes while under suspension. A student is subject to academic suspension if they fall below the minimum requirements or fail to make sufficient progress toward attainment of the degree, as outlined below.

**UT Policy** - Academic Standing/Suspension (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-01%20Academic%20standing.pdf>)

University standards for required minimum GPA associated with attempted quality hours

- Minimum 1.00 GPA, after attempting 10-19 semester hours
- Minimum 1.50 GPA, after attempting 20-29 semester hours
- Minimum 1.70 GPA, after attempting 30-39 semester hours
- Minimum 1.80 GPA, after attempting 40-49 semester hours
- Minimum 1.90 GPA, after attempting 50-59 semester hours
- Minimum 2.00 GPA, after attempting 60 semester hours

Note: A student may be suspended if the student falls below a cumulative GPA of 2.0 for two consecutive semesters after attempting more than 60 semester hours.

## Readmission

Suspended students cannot enroll at UT for at least one semester. A suspended student must submit an appeal in writing for readmission to the Neff College of Business and Innovation Academic Standards Committee at [COBladvising@utoledo.edu](mailto:COBladvising@utoledo.edu). Students suspended for a second time cannot enroll at UToledo for at least one year. Appeals must be received at least one month prior to the beginning of the academic term.

## Additional UT Undergraduate Academic Policies (<http://www.utoledo.edu/policies/academic/undergraduate/>)

- **UT Policy** - Enrollment Status (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-02%20Enrollment%20status.pdf>)
- **UT Policy** - Academic Forgiveness (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-06%20%20Academic%20forgiveness.pdf>)
- **UT Policy** - Adding/Dropping a course (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-08%20%20Adding%20or%20dropping%20a%20course.pdf>)
- **UT Policy** - Dual Degrees (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-09%20Dual%20degrees.pdf>)
- **UT Policy** - Grades and Grading (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-11%20%20Grades%20and%20grading.pdf>)



- **UT Policy** - Priority Registration (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-12%20Priority%20registration.pdf>)
- **UT Policy** - Graduation with Honors distinction; Dean's List; President's List (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-13%20%20Graduation%20with%20honors%20distinction.pdf>)
- **UT Policy** - Missed Class Policy (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-14%20Missed%20class%20policy.pdf>)
- **UT Policy** - Confidentiality of student records (FERPA) (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-15%20Confidentiality%20of%20student%20records.pdf>)
- **UT Policy** - Administrative adjustment for extenuating circumstances (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-16%20Administrative%20adjustment%20for%20extenuating%20circumstance.pdf>)
- **UT Policy** - Veteran and service members' support and assistance ([https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364\\_71\\_18.pdf](https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364_71_18.pdf))

## Student Services

### Academic Advising

Students receive advising concerning their academic program from the college professional advisors located in the Office of Student Retention and Academic Success in Savage Business Complex Room 3130. Students may self-select which of the COBI advisors to work with or the office will make recommendations based on need and advisor level of expertise. Advisors are cross-trained in a variety of areas so that someone is always available to answer specific questions. Appointments are available throughout the year. Students may also email general questions to the staff through [COBIadvising@utoledo.edu](mailto:COBIadvising@utoledo.edu). Degree audits (DARS) are available in the office and online through Student Self-Service through the myUT portal.

Although advisors assist students as needed, *the final responsibility for fulfilling all degree requirements rests with the student.*

## College of Business and Innovation Honors Program

### Jesup Scott Honors College

The Jesup Scott Honors College is an opportunity for students of high ability and achievement to enrich their regular program of college work. Admission is based on grades, scores on achievement tests and an essay. The College of Business and Innovation's Honors Program is offered as part of the Jesup Scott Honors College. Students take honors courses in the Honors College, as well as in the College of Business and Innovation. Enrollment in honors courses is limited. Approximately 20 freshman students are admitted each fall to a program leading to receipt of the College of Business and Innovation honors citation upon graduation.

## Program Requirements

### College of Business and Innovation College Honors Program

To be eligible for the College of Business and Innovation Honors Program citation, a student must:

1. Fulfill all requirements for an approved degree program within the college with a minimum overall GPA of 3.3.
2. Complete a minimum of 27 hours of honors courses, which must include HON 1010, HON 2010 and HON 3010 (9 hours). The additional 18 hours of Honors coursework should be selected from the business coursework from following list of courses (**subject to availability**). **Students may need to complete honors learning contracts to complete the necessary honors hours if honors business courses are not available.**
3. Completion of an Honors Project or Thesis.

Code	Title	Hours
<b>Lower Division Courses</b>		
BUAD 1010	Introduction To Business (Fall Term)	3
BUAD 2040	Financial Accounting Information (Fall Term)	3
<b>Upper Division Courses</b>		
BUAD 3010	Principles Of Marketing (Fall Term)	3
BUAD 3020	Principles Of Manufacturing And Service Systems (Spring Term)	3
BUAD 3030	Managerial And Behavioral Processes In Organizations (Spring Term)	3
BUAD 3040	Principles Of Financial Management (Fall Term)	3
BUAD 4020	Senior Business Policy Forum (Fall Term)	3
<b>Total Hours</b>		<b>21</b>

Code	Title	Hours
<b>Upper Division Courses</b>		
BUAD 3010	Principles Of Marketing	3
BUAD 3020	Principles Of Manufacturing And Service Systems	3
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
BUAD 3040	Principles Of Financial Management	3
BUAD 4020	Senior Business Policy Forum	3
<b>Total Hours</b>		<b>15</b>

#### Honors Retention Standards

The Honors College sets the Policy on retention in the program at the University.

## Study Abroad Opportunities for Business Majors

Participation in Study Abroad allows our students to gain hands-on, practical international experience for today's global marketplace. The University of Toledo has partnered with various consortia to include USAC (University Studies Abroad Consortium) ISA (International Studies



Abroad) GlobalLinks Learning Abroad – AustraLearn / AsiaLearn / EuroLearn, and Semester at Sea. These partnerships allow UT students the opportunity to study at top-ranked, international universities throughout the world. Our most popular sites include: Torino Italy, Bilbao Spain, Gold Coast Australia, Shanghai China, Luneburg Germany, and Puntarenas Costa Rica.

All College of Business and Innovation students, regardless of their intended major(s), are strongly encouraged to study abroad throughout their undergraduate degree program. Study abroad programs assist students in the development of academic, intellectual, personal, professional, and cross-cultural skills. Students may choose to study abroad over a traditional fall or spring semester, over non-traditional, intensive summer sessions, or throughout the full academic year. Students typically enroll in a combination of upper-level business courses and core curricular courses (taught in English). Elementary, intermediate, and upper-level foreign language tracks are also available; multiple courses may be completed in only one semester (particular programs determine language requirements). Foreign language proficiency prepares students for international internship opportunities.

Additionally, the College of Business and Innovation offers 10-day, faculty-led, international intensive immersion trips to Eastern Europe, Western Europe, and Asia throughout the academic year (to include summer semester). Intensive immersion opportunities vary from year to year.

COBI students will meet with the COBI Study Abroad Specialist who works in conjunction with the Director of Student Academic Success and the COBI department chairs to identify which study abroad courses will transfer into their specific degree program.

Please note that current students may be eligible to receive a free travel grant from The University of Toledo's Center for International Studies and Programs Office. For more information on any of the aforementioned programs, please contact COBI Student Services at 419.530.2087 for a referral. Please note that early preparation (first-year planning) is imperative to successful study abroad opportunities!

## Bachelor of Business Administration (B.B.A.)

The Bachelor of Business Administration (BBA) undergraduate curriculum includes a broad liberal arts background, a general core of business courses, and a specific area of specialization. During freshman and sophomore years, students take general education/core curriculum classes, as well as several basic business courses. During the sophomore year, students apply to the upper division of the program. During their junior year, they choose an area of specialization/major and begin their upper division business core. Students may choose to pursue up to three majors and minors within the College of Business and Innovation. Pursuing more than one major and minor may require more than the minimum 120 hours for the BBA degree. The College of Business and Innovation currently offers the BBA in ten fields.

### Areas of Specialization / Majors

Students must take a minimum of 10 courses between their area of specialization/major and either a business minor, second specialization or other 3000/4000 level business electives. Courses in the area of

specialization/major may consist of required and/or elective courses and an internship opportunity. Students should consult their degree audit for specific degree and major requirements.

Students wishing to complete 3 COBI majors may only double count up to 2 courses in their majors. While 3 majors are allowed, the DARS system cannot display 3 majors. Therefore it is a student's responsibility to notify their advisor prior to any advising appointment or questions regarding degree completion so that additional steps may be taken to access the correct information. Only one BBA will be awarded.

## Grade and Hour Requirements

In order to earn a B.B.A. degree, students must complete a minimum of 120 semester hours of course work, with a minimum cumulative 2.0 GPA on a 4.0 scale. Please note that it may take more than 120 semester hours to meet all degree requirements based on course selection and placement. All General Education/University Core, lower division and upper division requirements must be satisfied. Students must earn a minimum of a C (2.0) grade in each course in the major/area of specialization, in the Communication requirement, and in each course in a business minor (if one is completed). The departmental chair has the prerogative of substituting an additional course in the area of specialization or minor, rather than requiring the student to repeat the course in which a grade below C was received. The student must earn a C or higher in the substituted course for it to satisfy the requirements of the specialization or minor.

## Lower Division Curricular Requirements

Students earning bachelor degrees in all colleges and programs are required to complete a minimum of 36 - 42 credit hours of courses that comprise the General Education/University Core Curriculum. The courses are distributed in the areas of English composition, humanities/fine arts, social sciences, natural sciences, mathematics and multicultural studies. Please see the general section of the University Catalog or your degree audit for more detailed information on the General Education/University Core Curriculum.

Lower Division courses that each student is required to take in the College of Business and Innovation, regardless of area of specialization, are identified below. Students must earn a minimum 2.25 GPA in the subset courses <sup>(1)</sup> to meet graduation requirements. Students must also earn a grade of "C" (2.00) or higher in their Executive Communication course.

Code	Title	Hours
BUAD 1000	Orientation For Business Students	1
BUAD 1010	Introduction To Business <sup>1</sup>	3
BUAD 1020	Micro-Computer Applications In Business <sup>1</sup>	3
BUAD 2000	Career Development I	1
BUAD 2020	Information Technology Management <sup>1</sup>	3
BUAD 2030	Executive Communication Essentials <sup>1,2</sup>	3
BUAD 2040	Financial Accounting Information <sup>1</sup>	3
BUAD 2050	Accounting For Business Decision-Making <sup>1</sup>	3
BUAD 2060	Business Statistics <sup>1</sup>	3
BUAD 2070	Business Analytics <sup>1</sup>	3

BUAD 2080	Global Environment Of Business <sup>1</sup>	3
<b>Total Hours</b>		<b>29</b>

<sup>1</sup> Students must earn a minimum 2.25 GPA in the subset courses to meet graduation requirements.

<sup>2</sup> Grade of C (2.00) or higher.

## Upper Division Curricular Requirements

All students make formal application for admission to the upper division beginning one semester prior to the semester in which they earn 60 hours.

The core junior and senior years of the curriculum consist of the following upper division business requirements, an area of specialization, and either a minor or business elective courses. Students must earn a minimum 2.25 GPA in the subset courses (<sup>1</sup>) to meet graduation requirements. Students must also earn a grade of "C" (2.00) or higher in all major and minor courses.

Code	Title	Hours
BUAD 3000	Career Development II	1
BUAD 3010	Principles Of Marketing <sup>1</sup>	3
BUAD 3020	Principles Of Manufacturing And Service Systems <sup>1</sup>	3
BUAD 3030	Managerial And Behavioral Processes In Organizations <sup>1</sup>	3
BUAD 3040	Principles Of Financial Management <sup>1</sup>	3
BUAD 3470	The Legal And Ethical Environment Of Business <sup>1</sup>	3
BUAD 4020	Senior Business Policy Forum <sup>1</sup>	3

<sup>1</sup> Students must earn a minimum 2.25 GPA in the subset courses to meet graduation requirements.

The Bachelor of Business Administration (BBA) undergraduate curriculum includes a broad liberal arts background, a general core of business courses, and a specific area of specialization. Students must select at least one of the ten areas/majors listed below.

- Accounting (p. 518)
- Entrepreneurship and Innovation (p. 540)
- Finance (p. 529)
- Management (p. 542)
- Human Resource Management (p. 541)
- Information Systems (p. 534)
- Marketing (p. 549)
- Operations & Supply Chain Management (p. 536)
- Organizational Leadership and Management (p. 545)
- Professional Sales (<https://catalog.utoledo.edu/undergraduate/business-innovation/department-marketing-international-business/bba-professional-sales/>)

## Bachelor of Applied Organizational Technology (BAOT)

The applied organizational technology program (BAOT) is designed for students who already have a technical associate's degree. These students can complete a bachelor's degree in the equivalent of two additional years of full-time study at The University of Toledo including a business focus along with an individualized plan to meet career goals.

This program includes a general business focus as well as general education and higher level non-business coursework. Some students elect to include a minor from outside the college of business as part of their degree requirements. Students may also complete a business minor in addition to required courses. All transfer students must have a minimum GPA of 2.25 and have completed a technical associate degree to be accepted into the College of Business and Innovation for the bachelor of applied organizational technology. Transfer students' admission will be determined by the higher education (HEd) grade point average. The HEd GPA is based on all letter grades attained at all institutions of higher learning and uses the point average scale of "A" equaling four points.

## Grade and Hour Requirements

In order to earn the B.A.T. degree, students must complete a minimum of 120 hours of course work, with a minimum cumulative 2.0 GPA on a 4.0 scale. The total hours include transfer hours as well as hours completed at The University of Toledo. Requirement categories are listed below. Students must complete a minimum of 30 hours at the University of Toledo to meet senior residency requirements. Additional grade requirements are listed below. All General Education / University Core requirements must also be satisfied.

## Degree Requirements

Because each Associate Degree may contain courses that transfer in to a variety of requirements in the program, degree requirements are evaluated on an individual basis. Because of this, it is impossible to list a plan of study for the remaining requirements. Below is a listing of the overall degree requirements prior to transfer evaluations.

Code	Title	Hours
<b>1. General Education/University Core</b>		
Select a minimum 36 credit hours including the following:		36
English Composition - 6 hrs		
Core Math (excluding Statistics) - 3 hrs		
Humanities/Fine Arts - 6 hrs		
Social Science - 6 hrs		
Natural Sciences (including lab) - 7 hrs		
Multicultural:		
Diversity of U.S. - 3 hrs		
Diversity - non-U.S. - 3 hrs		
<b>2 General Business Focus</b>		
<b>A. Prerequisites</b>		
BUAD 2060	Business Statistics (or statistics equivalent)	3



BUAD 1020	Micro-Computer Applications In Business (or computing equivalent)	3
Select 18 hours <sup>1</sup>		18
<b>B. Required Foundation Course</b>		
BUAD 2040	Financial Accounting Information <sup>2,3</sup>	3
	or ACTG 1040 Principles Of Financial Accounting	
<b>C. Additional Requirements</b>		
Select three courses from the following (one must be 3000 level to avoid additional course work):		9
BUAD 1010	Introduction To Business <sup>2</sup>	
BUAD 2020	Information Technology Management <sup>2</sup>	
BUAD 2030	Executive Communication Essentials <sup>2</sup>	
BUAD 2050	Accounting For Business Decision-Making <sup>2,3</sup>	
BUAD 2070	Business Analytics <sup>2,3</sup>	
BUAD 2080	Global Environment Of Business <sup>2</sup>	
BUAD 3010	Principles Of Marketing <sup>2,3</sup>	
BUAD 3020	Principles Of Manufacturing And Service Systems <sup>2,3</sup>	
BUAD 3030	Managerial And Behavioral Processes In Organizations <sup>2</sup>	
BUAD 3040	Principles Of Financial Management <sup>2,3</sup>	
BUAD 3470	The Legal And Ethical Environment Of Business <sup>2</sup>	
Select two additional courses <sup>4</sup>		6
<b>3. Upper Level Courses</b>		
Select 24 hours of upper division courses outside the College of Business and Innovation at UT. <sup>5</sup>		24
<b>4. Additional Courses <sup>6</sup></b>		
Select 18 hours		18
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Eighteen (18) hours are required beyond the prerequisite courses.

<sup>2</sup> A grade of C (2.0) or better is required.

<sup>3</sup> Prerequisites for an MBA can also be fulfilled by completing this course with a minimum grade of C (2.0).

<sup>4</sup> Select two additional courses from the eight listed above or select two courses at the 3000- or 4000- level from ACCT, FINA, INFS, MGMT, EFSB, IBUS, EBUS, OSCM, HURM, PSLS, BLAW, or MKTG to complete the additional requirements. (Prerequisites for selected courses must be fulfilled.)

<sup>5</sup> 24 hours must be taken as upper division courses (numbered 3000-4000) from a college outside the College of Business and Innovation at UT. All prerequisites must be met. Some course exceptions to meet career goals may be considered upon appeal at the Dean's Office through your academic adviser in COBI Student Services.

- 12 hours of the 24 upper level hours **must** be from the Colleges of Arts & Letters and Natural Sciences and Mathematics.
- An additional 12 hours of upper level hours must come from any college **except** the College of Business and Innovation at UT.
- Students have the opportunity to complete a minor in the Colleges of Arts & Letters and Natural Sciences and Mathematics with the proper selection of classes.

<sup>6</sup> Additional courses/credit hours may be necessary to make up the difference toward the minimum 120 hours required for the degree program.

## Additional Notes

- Approximately 60-66 hours will be transferred in from an Associate Degree. This may include some General Education core and business classes as well as technical courses. These technical courses will be at the 1000-2000 level and credit will be counted under Additional Courses.
- Students must meet with their academic adviser to create an individualized plan of study due to the fact that courses coming in from their associate degree will vary.
- This is a Bachelor degree completion 2 + 2 program. Student must have a technical associate degree completed prior to the awarding of the BAOT.
- Students are required to successfully completed 120 semester credit hours with an overall grade point average of 2.0 or higher.
- Students should consult their Degree Audit for coursework that fulfills elective course requirements in General Ed and 3000/4000 Business and non-Business Elective areas.
- Because every student may have taken a variety of courses as part of their associate degree, it would be impossible to lay out a generic plan of study.

### Requirement Areas:

- General Education Minimum 36 hrs
- General Business Focus Minimum 33 hrs
- Upper Level Course 24 hours from 3000/4000 level courses from outside the College of Business including 12 hours from the College of Arts & Letters and Natural Sciences and Mathematics.
- Remaining hours come from courses toward the original associate degree or other elective hours of the student's choice.

### Consult advisor for the plan of study.

- PLO 1: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior.
- PLO 2: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies.
- PLO 3: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community.
- PLO 4: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.
- PLO 5: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound inferences from and use effective problem-solving and decision-making techniques.

- PLO 6: Business Acumen – Each student can identify, interpret, evaluate and suggest solutions within the legal, global, financial, marketing and operational dimensions of business.
- PLO 7: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity.

## Cannabis Management Certificate

Code	Title	Hours
EFSB 4900	Cannabis Entrepreneurship	3
BLAW 4900	Cannabis Law	3
MBC 4400	Cannabis Science: Plants and Products	3
PHCL 4400	Cannabis Science – Risks & Benefits	3

- PLO 1: The Cannabis Certificate at the University of Toledo advances a breadth and depth of knowledge on Cannabis ranging from basic science to production to entrepreneurship. Coursework taught by the College of Pharmacy and Pharmaceutical Sciences includes detailed explorations of Cannabis history; plant structure, genetics, and horticulture; plant chemical production, isolation, analysis, and formulation; and pharmacology, biochemistry, physiology, neurobiology, addictive properties, risks, and benefits as related to human use. Coursework in the College of Business and Innovation examines ethical and legal realities and the management of production, marketing, and distribution of Cannabis products. Students identify and argue the validity of social, legal, and ethical underpinnings of Cannabis prohibition and update on current and trending State and Federal regulations. Students gain insight into the entrepreneurial challenges in the manufacture and distribution of Cannabis products both for medical and recreational use in a public but highly regulated marketplace and develop ideas as to how to be successful given evolving parameters.

## Department of Accounting

Interim Chair, Dr. Heba Abdel-Rahim

The Department of Accounting offers courses in the areas of financial accounting, management accounting, auditing, accounting systems and taxation. Completion of an accounting area of specialization leads to professional careers in public accounting, business and government and begins the preparation for the Certified Public Accountant (CPA) examination. In the state of Ohio, all candidates taking the CPA exam must have completed 120 credit hours (150 hours are required for certification). The department of accounting offers a graduate degree that can be pursued in addition to a bachelor's degree.

### AACSB Accreditation

The department of accounting is accredited by the Association to Advance Collegiate Schools of Business, International (AACSB). This prestigious accreditation places our department among the top 2 percent of accounting departments worldwide!

## Degrees Offered

- BBA in Accounting (p. 518)

### ACCT 3100 Data Analytics in Accounting

[3 credit hours]

This class focuses on the skills necessary to analyze, visualize, and effectively communicate information captured by accounting data in written and visual form.

**Prerequisites:** (BUAD 2040 with a minimum grade of C and BUAD 2050 with a minimum grade of C)

**Term Offered:** Spring, Summer, Fall

### ACCT 3110 Intermediate Financial 1

[3 credit hours]

This course covers accounting topics applicable to asset valuation, income measurement and financial statement disclosure. It concentrates on accounting for corporations and emphasizes the accounting cycle and the asset side of the balance sheet.

**Prerequisites:** BUAD 2040 with a minimum grade of C and BUAD 2050 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

### ACCT 3120 Intermediate Financial 2

[3 credit hours]

This course concentrates on financial accounting for corporations and emphasizes the liability and stockholders' equity sections of the balance sheet, and related income statement issues.

**Prerequisites:** ACCT 3110 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

### ACCT 3210 Individual Taxation

[3 credit hours]

This class focuses on the concepts and principles applicable to the taxation of individuals.

**Prerequisites:** ACCT 3110 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

### ACCT 3310 Accounting Information Systems And Controls

[3 credit hours]

This course provides an introduction to processing and reporting of accounting information. Major emphasis is placed on basic accounting information processing including accounting applications in an advanced information technology environment.

**Prerequisites:** ACCT 3100 with a minimum grade of C and ACCT 3110 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

### ACCT 3320 Cost Accounting

[3 credit hours]

Internal Reporting focuses on budgeting, product and service costing and the ability to recognize and provide management with relevant information for strategic cost management and performance evaluation.

**Prerequisites:** ACCT 3110 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

### ACCT 4130 Advanced Financial Accounting

[3 credit hours]

This is the third course in the external financial reporting sequence. This course covers topics such as foreign exchange, partnerships, business consolidations and mergers.

**Prerequisites:** ACCT 3120 with a minimum grade of C or ACCT 5120 with a minimum grade of C

**Term Offered:** Spring, Fall



**ACCT 4250 Taxation of Business Entities**

[3 credit hours]

This course covers the taxation of corporations, their shareholders, and other business entities. Topics include formation of business entities, taxation of income, and tax treatment of distributions.

**Prerequisites:** ACCT 3120 with a minimum grade of C and ACCT 3210 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**ACCT 4410 Governmental And Not-For-profit Accounting**

[3 credit hours]

Principles, procedures and ethics of financial reporting for not-for-profit organizations, including state and local government. Includes the use of funds, budgets, appropriations and encumbrances as means of control.

**Prerequisites:** ACCT 3120 with a minimum grade of C

**Term Offered:** Spring, Fall

**ACCT 4420 Auditing**

[3 credit hours]

Auditing integrates financial and cost accounting, ethics, accounting theory, information systems and control structure concepts into a systematic process of obtaining, evaluating and reporting on economic events and activities.

**Prerequisites:** (ACCT 3110 with a minimum grade of C and ACCT 3310 with a minimum grade of C)

**Term Offered:** Spring, Summer, Fall

**ACCT 4940 Accounting Internship**

[1-3 credit hours]

The accounting internship allows superior accounting students to obtain practical training through a rigorous learning experience. This program enables students to secure a broad exposure to business operations and problems.

**Prerequisites:** ACCT 3110 with a minimum grade of B

**Term Offered:** Spring, Summer, Fall

**ACCT 4990 Independent Study: Readings And Research**

[1-3 credit hours]

The student will write a research report on an accounting topic of interest to both student and faculty adviser. The topic must not be covered in another undergraduate accounting course.

**Prerequisites:** ACCT 3120 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

## BBA in Accounting

Accountants provide information and analysis to help companies problem solve and achieve goals. Accountants provide a wide range of services whether they work in public accounting or in industry.

The Department of Accounting offers courses in the areas of data analytics, financial accounting, management accounting, auditing, accounting systems and taxation. Completion of an accounting area of specialization leads to professional careers in public accounting, business and government and begins the preparation for the Certified Public Accountant (CPA) examination. In the state of Ohio, all candidates taking the CPA exam must have completed 120 credit hours (150 hours are required for certification). The department of accounting offers a graduate degree, the MS in Accounting, which can be pursued after completion of the bachelor's degree.

No junior-level accounting courses may be attempted until a student is admitted to the upper division and the Accounting major by the College of Business and Innovation Accounting Department.

Code	Title	Hours
<b>Required Courses</b>		
ACCT 3100	Data Analytics in Accounting <sup>1</sup>	3
ACCT 3110	Intermediate Financial 1	3
ACCT 3120	Intermediate Financial 2	3
ACCT 3210	Individual Taxation	3
ACCT 3310	Accounting Information Systems And Controls	3
ACCT 3320	Cost Accounting	3
ACCT 4420	Auditing	3
<b>Total Hours</b>		<b>21</b>

<sup>1</sup> Students wishing to register for ACCT 3100 must meet the following prerequisites:

- a GPA of 2.750 or better in all introductory level college accounting courses, including a grade of C (2.0) or higher in BUAD 2040 and BUAD 2050 or equivalent courses, and
- an overall higher education GPA of 2.750 or higher in all prior college-level courses.

A permit must be entered to allow a student to register for ACCT 3100.

**Early admission/bridge program – BBA-MBA**

Undergraduate students accepted in the BBA-MBA option will be admitted to the MBA program and allowed to complete up to three **graduate level classes** (nine credit hours) during their final academic year of **undergraduate studies**. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in the MBA program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied **to completion of both undergraduate and MBA degree requirements**. The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the MBA joint program, 2) only BUAD 6100, BUAD 6300, BUAD 6400, BUAD 6500 BUAD 6800 may be included in the approved nine semester hours of graduate credit taken as an undergraduate. 3) Up to 9 credit hours of graduate business courses can be used toward the 3000/4000-level business electives or extra hours toward their BBA.

However, they may not count any of those 9 credit hours toward any specific undergraduate major or minor requirements, nor may they count toward any required undergraduate business core requirements (i.e., no BUAD-designated courses). Students must have at the time of application 1) a minimum of 3.0 cumulative undergraduate grade point average that will include undergraduate credits earned at other institutions and transferred to UT, 2) undergraduate advisor's approval, and 3) graduate advisor's approval. Students interested in the joint BBA / MBA program must submit 1) a letter of interest, 2) a completed graduate admission application, 3) at least 2 letter(s) of recommendation from faculty members. After successful completion of the application process, students will apply to the graduate program.

**Early admission/bridge program - BBA - MSA**

Undergraduate students accepted in the BBA-MSA option will be admitted to the Master of Science in Accountancy program and allowed to complete up to three **graduate level classes** (nine credit hours) during their final academic year of **undergraduate studies**. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in the MSA program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied **to completion of both undergraduate and MSA degree requirements**. The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the MBA joint program, 2) only BUAD 6200, BUAD 6300, BUAD 6400, BUAD 6500, BUAD 6800, ACCT 6130, ACCT 6190 ACCT 6250, OSCM 6250 may be included in the approved nine semester hours of graduate credit taken as an undergraduate. 3) Up to 9 credit hours of graduate business courses can be used toward the 3000/4000-level business electives or extra hours toward their BBA. However, they may not count any of those 9 credit hours toward any specific undergraduate major or minor requirements, nor may they count toward any required undergraduate business core requirements (i.e., no BUAD-designated courses). Students must have at the time of application 1) a minimum of 3.0 cumulative undergraduate grade point average that will include undergraduate credits earned at other institutions and transferred to UT, 2) undergraduate advisor’s approval, and 3) graduate advisor’s approval. Students interested in the joint BBA / MBA program must submit 1) a letter of interest, 2) a completed graduate admission application, 3) at least 2 letter(s) of recommendation from faculty members. After successful completion of the application process, students will apply to the graduate program.

**Combined bachelor's to master's – BBA-MABA**

Undergraduate students accepted to the BBA-MABA pipeline program option will be admitted to the Master of Applied Business Analytics (MABA) program and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) one or two courses from the following MABA core courses (INFS 6150, OSCM 6250 or OSCM 6350) and one of the following courses based on the student chosen functional area (BUAD 6100, BUAD 6200, BUAD 6300, BUAD 6600, BUAD 6800 or INFS 6050) may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the

combined program must submit a graduate admission application to the College of Graduate Studies.

Below is a sample plan of study. [Please see pre-business/lower division requirements BBA plan \(p. 514\) for terms one through four and additional information.](#) Consult your degree audit for your program requirements.

**Accrediting Body: Association to Advance Collegiate Schools of Business (AACSB) International.**

First Term		Hours
BUAD 1000	Orientation For Business Students	1
BUAD 1010	Introduction To Business	3
ENGL 1110	College Composition I	3
MATH 1320	College Algebra <sup>3</sup>	3
Arts/Humanities Core		3
Social Science Core <sup>1</sup>		3
<b>Hours</b>		<b>16</b>

Second Term		Hours
BUAD 1020	Micro-Computer Applications In Business	3
ECON 1150	Principles Of Macroeconomics	3
ENGL 2960	Professional and Business Writing	3
Diversity of US <sup>1</sup>		3
Natural Sciences Core <sup>1</sup>		3
Natural Sciences Laboratory <sup>1</sup>		1
<b>Hours</b>		<b>16</b>

Third Term		Hours
BUAD 2000	Career Development I	1
BUAD 2020	Information Technology Management	3
BUAD 2030	Executive Communication Essentials	3
BUAD 2040	Financial Accounting Information	3
BUAD 2060	Business Statistics	3
ECON 1200	Principles Of Microeconomics	3
<b>Hours</b>		<b>16</b>

Fourth Term		Hours
BUAD 2050	Accounting For Business Decision-Making	3
BUAD 2070	Business Analytics	3
BUAD 2080	Global Environment Of Business	3
Arts/Humanities Core <sup>1</sup>		3
Natural Science Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>

Fifth Term		Hours
ACCT 3100	Data Analytics in Accounting	3
BUAD 3000	Career Development II	1
BUAD 3010	Principles Of Marketing	3
BUAD 3020	Principles Of Manufacturing And Service Systems	3
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
Non-US Diversity <sup>1</sup>		3
<b>Hours</b>		<b>16</b>



Sixth Term		
ACCT 3310	Accounting Information Systems And Controls	3
ACCT 3110	Intermediate Financial 1	3
BUAD 3040	Principles Of Financial Management	3
BUAD 3470	The Legal And Ethical Environment Of Business (Pre-requisite: Junior Status)	3
Minor/Business Elective <sup>2</sup>		3
<b>Hours</b>		<b>15</b>
Seventh Term		
ACCT 3120	Intermediate Financial 2	3
ACCT 3210	Individual Taxation	3
Minor/Business Elective <sup>2</sup>		3
BUAD 4020	Senior Business Policy Forum	3
Elective		2
<b>Hours</b>		<b>14</b>
Eighth Term		
ACCT 3320	Cost Accounting	3
ACCT 4420	Auditing	3
Minor/Business Elective <sup>2</sup>		3
Elective		3
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Select from approved University core course work, see degree audit for course selection.

<sup>2</sup> Minor elective or 3000/4000 level Business elective if no Business minor is selected.

<sup>3</sup> Acceptable replacements include MATH 1260 or 1270 or 1340 or 1730 or 1750 or 1760 or 1850 or 1860 or 2450 or 2460

- PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community.
- PLO 2: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.
- PLO 3: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound inferences from and use effective problem-solving and decision-making techniques.
- PLO 4: Business Acumen – Each Student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business.
- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity.
- PLO 6: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies.

## Department of Applied Organizational Technology

Mary Humphrys, Chair

In order to earn any associate degree, students must meet all requirements and complete a minimum of 60 semester hours of course work, with a minimum cumulative 2.0 GPA on a 4.0 scale. A minimum of 15 hours must be complete through the University of Toledo. While multiple associate degrees may be completed (with the exception of only one ATS degree), each subsequent associate degree must include a minimum 15 credit hours that were not previously used toward another degree program. All of the associate degrees are offered in a distance learning/online format. Many of the major courses are not available in-person.

### Degrees Offered

- AA Pre-Business Administration (p. 524)
- AAB Computer Network Administration (p. 525)
- AAB-Business Management Technology (p. 526)
- ATS Technical Studies (p. 526)
- Digital Communication Applications Certificate (p. 528)

#### ACTG 1040 Principles Of Financial Accounting

[3 credit hours]

Basic financial accounting principles for a business enterprise. Topics include transaction analysis, preparation, interpretation and use of financial reports such as an income statement and balance sheet. Students will calculate and interpret a variety of financial ratios. Familiarity with business terms and concepts will be emphasized.

**Term Offered:** Spring, Summer, Fall

#### ACTG 1050 Principles Of Management Accounting

[3 credit hours]

Management uses of accounting data for analysis, decision making, financial planning and control. Topics include understanding cost behavior, job order and activity-based costing, cost-volume profit analysis and budgeting. Emphasis on development of critical thinking skills.

**Prerequisites:** ACTG 1040 with a minimum grade of D- or BUAD 2040 with a minimum grade of D-

#### ACTG 1200 QuickBooks

[3 credit hours]

This course will introduce students to QuickBooks software. Students will record financial transactions for fictional companies. Topics include creating a chart of accounts, recording customer and vendor transactions, processing payroll, and printing receipts.

**Term Offered:** Fall



**ACTG 2100 Intermediate Accounting I**

[3 credit hours]

In-depth expansion of financial accounting principles and financial statement presentation. Emphasis on balance sheet accounts with particular attention applied to working capital (cash, receivables, inventory, and current liabilities) and long-term assets. Discussion of revenue recognition and internal control.

**Prerequisites:** ACTG 1040 with a minimum grade of D- or BUAD 2040 with a minimum grade of D-

**Term Offered:** Spring

**ACTG 2300 Cost Accounting**

[3 credit hours]

Practice of cost accounting especially applied to manufacturing business. Includes accounting for materials, labor and overhead under job order and process cost systems, standard costing, use of the Balanced Scorecard, and quantitative tools useful in decision making.

**Prerequisites:** ACTG 1050 with a minimum grade of D- or BUAD 2050 with a minimum grade of D-

**Term Offered:** Fall

**ACTG 2310 Financial Management for Health Care**

[3 credit hours]

Provides a basic foundation in both financial and management accounting and corporate finance aimed at entry level managers working in a healthcare setting. Explains the basic forms of business financing, capital decision processes, capital investment analysis, and financial statements. Introduces business terminology and explains financial issues relevant to health care providers.

**Term Offered:** Spring

**ACTG 2400 Fundamentals Of Taxation**

[3 credit hours]

Consideration of the basic features of the federal income tax system. Emphasis is placed on the determination of taxable income of individuals and corporations. Also covered will be the preparation of the form 1040.

**Term Offered:** Spring

**ACTG 2630 Payroll Accounting**

[1 credit hour]

This course will teach students the development and maintenance of appropriate reports, retention periods and tax filings.

**Term Offered:** Spring

**BMGT 1010 Business Principles**

[3 credit hours]

An introduction to the world of business focusing on an overview of business operations with special emphasis on management, marketing, accounting and finance.

**Term Offered:** Spring, Summer, Fall

**BMGT 1500 Workplace Communication And Presentations**

[3 credit hours]

Covers all aspects of communicating in the workplace including oral, written and group communications. Specific subjects covered include composing agendas, conducting interviews and organizing meetings. Students will learn a computer graphics program and prepare a presentation.

**Term Offered:** Spring, Summer, Fall

**BMGT 1540 Organizational Behavior**

[3 credit hours]

This course will address the impact of individual and group behavior on organizations. Topics covered include downsizing, stakeholder management, network organizations, participative management approaches and the quality movement.

**Term Offered:** Spring, Summer, Fall

**BMGT 2010 Workplace Management**

[3 credit hours]

Covers issues dealing with managing a company in a predominantly service-oriented marketplace. Topics include training employees to deal with customers/clients, creating a customer-friendly business environment, problem-solving and strategic planning.

**Term Offered:** Spring, Summer, Fall

**BMGT 2020 Human Resource Development**

[3 credit hours]

Explores the functions of Human Resource development that focus on training and employee development with special emphasis on improving the quality of work life.

**Term Offered:** Spring, Summer, Fall

**BMGT 2030 Supervision**

[3 credit hours]

Explores the role of first-line managers in organizations with special emphasis on the responsibilities of supervisors. These responsibilities include delegation, communication, problem-solving, training and leading.

**Term Offered:** Spring, Fall

**BMGT 2050 Small Business Management**

[3 credit hours]

Examines entrepreneurship with a special emphasis on formulating, developing and operating a small business.

**Term Offered:** Spring, Fall

**BMGT 2110 Managing In A Global Economy**

[3 credit hours]

Students will examine one particular industry and learn the various economic factors associated with operating a business in an international setting.

**Term Offered:** Spring, Summer, Fall

**BMGT 2310 Legal Environment Of Business**

[3 credit hours]

Carefully documents treatment of the legal framework of business. Emphasis on the international aspect of business law. Topics covered include contracts, bailments, agency relationships, legal forms of ownership and negotiable instruments.

**Term Offered:** Spring, Fall

**BMGT 2700 Managing Diversity In The Workplace**

[3 credit hours]

This course offers a conceptual framework for understanding diversity and its effects on organizational behavior. It will also provide action tools for effective management of diversity in organizations.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**BMGT 2750 Cultural Communications In The Workplace**

[3 credit hours]

Strategies taught to increase communication effectiveness among employees from differing cultural backgrounds. Students will also learn market-specific tips and taboos and develop strategies for negotiating across cultures.

**Term Offered:** Spring, Summer, Fall  
Multicultural US Diversity

**BMGT 2990 Independent Study**

[1-3 credit hours]

Students will study a management-related subject mutually agreed upon between the student and instructor. The format may include lecture, computer lab and/or practical experience.

**Term Offered:** Spring, Summer, Fall

**CMPT 1010 Computer Fundamentals**

[1 credit hour]

Introduction to computers. Topics covered are hardware, software, computer operation, terminology and applications.

**Term Offered:** Spring, Fall

**CMPT 1020 Computer Concepts**

[4 credit hours]

Introduction to computer software, hardware, and processes associated with contemporary computer systems. Topics include operating systems, user applications, e-mail, WWW, and search capabilities. Emphasis is placed on the Internet and networking.

**Term Offered:** Spring, Summer, Fall

**CMPT 1100 Microsoft Office Applications**

[3 credit hours]

Concepts and techniques of the application of Microsoft Word, Excel, Access and PowerPoint in the workplace.

**Term Offered:** Spring, Summer, Fall

**CMPT 1110 Pc Operating Systems**

[3 credit hours]

A+ certification aligned study of both command line and graphical user-based current PC operating systems. Topics include installation and upgrade, configuration, management, troubleshooting and network connectivity.

**Term Offered:** Fall

**CMPT 1120 Visual Basic Programming**

[4 credit hours]

A currently popular programming language, such as Microsoft Visual Studio, will be used to create stand-alone applications. Topics such as object-oriented coding, logical procedures and proper documentation are stressed.

**Term Offered:** Spring

**CMPT 1320 Internet And The World Wide Web**

[1 credit hour]

Topics include history of the Internet, IP addressing, World Wide Web, HTML, and CSS. Students will learn the history and functionality of the Internet and create a two-page website using HTML and CSS.

**Term Offered:** Spring, Summer, Fall

**CMPT 1400 Dreamweaver Web Page Development**

[3 credit hours]

Using Dreamweaver students will learn how to plan and develop a successful Web site, organize page content, format Web sites using CSS styles, produce dynamic Web pages and add animation using rich media and reusable assets and forms.

**Term Offered:** Spring, Fall

**CMPT 1410 Microsoft Excel Spreadsheet Application**

[2 credit hours]

Introduces the basic features of Microsoft Excel and spreadsheet concepts to design and create accurate professional worksheets for use in business and industry. Hands-on exercises include entering data; creating formulas; professional formatting; creating charts; adding visual interest, creating, sorting, and filtering lists; creating and using templates; and working with functions. Focuses on proofing methods to ensure accuracy and critical thinking to determine what data to present and how to present it.

**Term Offered:** Spring, Summer, Fall

**CMPT 1420 Microsoft Access Database Applications**

[2 credit hours]

Hands-on analysis of the use of Access in solving workplace problems with an emphasis on the entering, updating, manipulating, storing and retrieving of information.

**Term Offered:** Spring, Fall

**CMPT 1430 Microsoft Word**

[2 credit hours]

Introduces the basic features of Microsoft Word and word processing concepts to create, edit, and print documents for use in business, industry, and to enhance professional documents. Hands-on exercises include creating and formatting letters, memos, and business documents; producing multi-page documents; creating headers and footers; becoming familiar with the writing/editing tools; enhancing documents with images; creating and formatting tables, and producing mail-merged letters, envelopes, and mailing labels.

**Term Offered:** Spring, Summer, Fall

**CMPT 1440 Microsoft Powerpoint Presentations**

[2 credit hours]

Introduces the basic features of Microsoft PowerPoint and electronic presentation concepts to create, edit, and deliver presentations for use in business, industry, and to enhance informational presentations. Emphasis includes planning, creating, and editing presentations for delivery on a projection system, personal computer, or to run automatically on a kiosk system. Exercises include designing using themes; applying animations, sound, and transitions; using and customizing templates; and adding tables, charts and graphics for improved comprehension and clarity.

**Term Offered:** Spring, Summer, Fall

**CMPT 1450 Microsoft Outlook**

[1 credit hour]

Students will learn a popular messaging and personal information management program used to send and receive e-mail and manage messages, contacts, appointments and tasks.

**Term Offered:** Spring, Fall

**CMPT 1500 Flash Web Animation**

[3 credit hours]

This course offers the opportunity to learn entry-level web animation that includes frame by frame animation, animated shapes, using masks, and motion tweens. In this course you will be learning how to create animated holiday e-cards, animated short movies, and much more.

**Term Offered:** Spring, Fall**CMPT 1510 Digital Design Fundamentals**

[3 credit hours]

Theory and the practical application in working with digitally-produced documents to provide well-designed business communication pieces for print and online distribution. The basic principles of good layout/design, image creation via scanner/camera, font selection/technology, image file formats, and typography are addressed. Also the fundamentals of print technology from the desktop user's perspective with attention to image resolution, halftones/screen frequency, stock selection, bindery, job scheduling concerns, and color use and theory to prepare files for professional print production are covered.

**Prerequisites:** CMPT 1100 with a minimum grade of D-**CMPT 1520 Beginning Adobe Illustrator**

[3 credit hours]

Introduces the creation of professional vector images using Adobe Illustrator Creative Cloud. Hands-on exercises include creating logos, illustrations, brochures, and posters. Techniques studied include drawing basic shapes, creating vector paths, using the pen and pencil tools, brushes, and symbols, transforming artwork, creating patterns, gradients, blends, symbols, and creating compound paths. Additional topics covered are color theory, typography, 3D vector effects, drawing in perspective, creating illustration components for the web, and importing images.

**Term Offered:** Spring, Fall**CMPT 1530 Beginning Adobe Photoshop**

[3 credit hours]

Introduces the creation of professional raster photos using Adobe Photoshop Creative Cloud, Camera Raw, and Bridge. Hands-on exercises include photo retouching and repairing; color painting; applying masking, layer styles, and filters; advanced compositing; designing with type; vector drawing techniques; preparing files for the Web; and using Photoshop's automation features. Additional topics covered are image resolution; file formats; color theory; ethical and copyright issues involving photo editing; and using various tools and features.

**Term Offered:** Spring, Summer, Fall**CMPT 1550 Adobe Acrobat**

[3 credit hours]

Using Adobe Acrobat DC, learn to create, edit, publish, and sign Portable Document Format (PDF) files for distribution of electronic files across Mac and Windows platforms, devices, and among different software programs. Document security, capturing scans and making them editable, creating searchable and interactive PDF forms, and improving workflow collaboration and production speed will be addressed in this hands-on, project-based course.

**CMPT 1600 Internet Design And Publishing**

[3 credit hours]

This course offers a broad overview and extensive practical experience in the design and production of Web pages. Students learn current Web design technology.

**Term Offered:** Spring, Fall**CMPT 1700 Blogging and Social Networking**

[3 credit hours]

This course offers a broad overview and extensive practical experience with blogging and social media. In this course, you will learn about designing a blog site and gain practical experience. You will also be learning about all the new social media available on the web.

**Term Offered:** Spring, Summer, Fall**CMPT 2030 C Family Programming**

[4 credit hours]

Students are introduced to the C family of programming languages. Students will write computer programs using the most up-to-date versions of this language family.

**Term Offered:** Spring, Fall**CMPT 2410 Adobe InDesign Desktop Publishing**

[3 credit hours]

Introduces the creation of professional desktop published documents using Adobe InDesign Creative Cloud, to design effective and engaging print publications, such as announcements, fliers, advertisements, and reports. Hands-on exercises include designing and modifying layouts, creating master pages and styles, importing, flowing, and editing text, importing graphics, and designing tables. Additional topics include typography and design basics, creating PDF forms, exploring the publishing cycle, printing and exporting basics, and creating ePubs.

**Term Offered:** Spring**CMPT 2430 Advanced Microsoft Word**

[2 credit hours]

Covers advanced features of Word through complex formatting techniques such as customizing paragraphs and pages; using bullets and multi-level numbering features; and formatting long documents with separate sections, headers, and footers. Hands-on exercises include proofing with spelling, grammar, and readability tools; using auto-entry and customization features; working with styles and macros; creating reference footnotes for academic papers; generating tables of content and indexes; working with, comparing, and tracking shared documents; and embedding, and linking objects.

**Prerequisites:** CMPT 1430 with a minimum grade of D-**Term Offered:** Fall**CMPT 2460 Advanced Microsoft Excel Spreadsheet**

[2 credit hours]

Covers advanced features of Excel to design and create accurate, professional worksheets using advanced functions and formulas. These include financial, logical, statistical, lookup, and database functions. Hands-on exercises include exploring the advanced features of data tables, creating complex graphs, using pivot tables; performing "what-if" data analysis, examining various scenario models, protecting and sharing workbooks, using 3-D cell references, automating with macros; and importing, exporting, and distributing data, and customizing the software to suit various needs.

**Prerequisites:** CMPT 1410 with a minimum grade of D-**Term Offered:** Spring

**CMPT 2500 Help Desk Concepts**

[3 credit hours]

This course provides students with a core set of technical and communication skills. Topics include hard skills such as security, troubleshooting, working with networks and mobile devices. Personal computer hardware and operating systems and also discussed. Soft skills includes verbal and non-verbal communication, time management and active listening. After taking this course, students will be prepared for positions as a help desk specialist.

**Term Offered:** Spring, Fall**CMPT 2530 Advanced Adobe Photoshop**

[3 credit hours]

An advanced, hands-on application of Adobe Photoshop for Digital Imaging. Students capture, create, manipulate and edit images for high-end output.

**Prerequisites:** CMPT 1530 with a minimum grade of D-**Term Offered:** Spring**CMPT 2620 Web Site Maintenance**

[3 credit hours]

This course develops skills for students who will function as Web developers or project managers responsible for increasing Web site traffic, updating Web content and designs. Students learn planning issues related to Web design and redesign.

**Term Offered:** Spring, Fall**CMPT 2990 Independent Study**

[1-4 credit hours]

Students will study a computer-related subject mutually agreed upon between the student and the instructor. The format may include lecture, computer lab and/or practical experience.

**Term Offered:** Spring, Summer, Fall**CNET 2100 Microsoft Operating Systems**

[3 credit hours]

In-depth study of a contemporary network operating system. Topics include operating system installation and upgrade, configuration, management and troubleshooting.

**Term Offered:** Fall**CNET 2150 Computer Hardware**

[3 credit hours]

Knowledge of computer hardware for the purpose of acquisition, installation and maintenance at the equipment level. The curriculum is aligned with the A+ certification standards.

**Term Offered:** Spring, Summer, Fall**CNET 2200 Network Technologies**

[4 credit hours]

Examines the network technologies utilized in today's networks. Emphasis is placed on understanding hardware and software concepts and protocols referred to in technical publications and advanced network studies.

**Term Offered:** Spring, Summer**CNET 2300 Network Operating Systems II**

[4 credit hours]

This course offers an in-depth study of a contemporary network operating system. Topics include operating system installation and upgrade, configuration, management and troubleshooting.

**Term Offered:** Spring, Fall**CNET 2400 Network Operating System Support**

[4 credit hours]

Examines the support aspects of a contemporary network operating system in a local area network environment. Topics include operating system installation, upgrade, configuration, management and troubleshooting.

**Term Offered:** Spring, Fall**CNET 2410 Network Services and Infrastructures**

[3 credit hours]

This course culminates the CNET server curriculum by focusing on vital network services and supporting network infrastructure. Topics include network budgeting, design, planning and implementation, as well as enterprise-wide internetworking.

**Prerequisites:** CNET 2400 with a minimum grade of D-**Term Offered:** Spring, Fall

## AA Pre-Business Administration

Minimum 60 hours

The Associate of Arts in Pre-Business is designed as the first half of the Bachelor of Business Administration degree. It is a general studies associate degree as it contains mostly the core courses required of all students plus the beginning general business requirements.

Below is a sample plan of study. Consult your degree audit for your program requirements.

### Associate of Arts in Pre-business Administration

- Students are required to successfully complete a minimum of 60 semester credit hours with an overall grade point average of 2.0 or higher.
- Students should be academically prepared to be placed into MATH 1320 at a minimum. Students placing into lower developmental Math levels - MATH 1200 will be required to complete additional course work. Students placing directly into MATH 1730 may replace MATH 1320 with an elective or course work required later for their BBA.
- This Degree Program leads into any BBA major for completion of the bachelor degree.
- Students should consult their Degree Audit for coursework that fulfills course requirements in University Core areas.

First Term		Hours
BUAD 1000	Orientation For Business Students	1
BMGT 1010	Business Principles	3
CMPT 1100	Microsoft Office Applications	3
ENGL 1110	College Composition I	3
MATH 1320	College Algebra	3
Social Sciences Core <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
Second Term		
ECON 1150	Principles Of Macroeconomics	3
ENGL 2960	Professional and Business Writing	3

MATH 1730	Calculus with Applications to Business and Finance	5
Arts/Humanities Core <sup>1</sup>		3
<b>Hours</b>		<b>14</b>
<b>Third Term</b>		
ACTG 1040	Principles Of Financial Accounting	3
BMGT 2700	Managing Diversity In The Workplace (or US Diversity Core) <sup>1</sup>	3
BUAD 2060	Business Statistics	3
ECON 1200	Principles Of Microeconomics	3
Natural Sciences Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
ACTG 1050	Principles Of Management Accounting	3
BMGT 2110	Managing In A Global Economy	3
BUAD 2070	Business Analytics	3
Natural Sciences Core <sup>1</sup>		3
Arts/Humanities Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>60</b>

<sup>1</sup> Select from approved general education/university core course work, see degree audit for course selection.

## AAB Computer Network Administration

Minimum 60 hours

Computer network administration prepares students for work in the computer networking industry. Students learn about operating systems management, programming, networking fundamentals and computer integration. The course work prepares students for professional certifications for companies like Microsoft, CompTIA and Cisco.

Below is a sample plan of study. Consult your degree audit for your program requirements.

### Associate of Applied Business in Computer Network Administration

- Students are required to successfully complete a minimum of 60 semester hours with an overall grade point average of 2.0 or higher.
- Students should be academically prepared to be placed into MATH 1180 or MATH 1200 at a minimum.
- Students should consult their Degree Audit for coursework that fulfills course requirements in the University Core.
- Students may use the associate degree to go on to the BAOT for 2+2 bachelor degree completion.

<b>First Term</b>		<b>Hours</b>
BUAD 1000	Orientation For Business Students	1
ENGL 1110	College Composition I	3

Select one of the following:		3-4
MATH 1180	Reasoning With Mathematics	
MATH 1200	Mathematical Modeling and Problem Solving	
MATH 1320	College Algebra	
CMPT 1110	Pc Operating Systems	3
Social Sciences Core		3
<b>Hours</b>		<b>13-14</b>
<b>Second Term</b>		
ENGL 2960	Professional and Business Writing	3
CMPT 1020	Computer Concepts	4
CNET 2400	Network Operating System Support	4
CNET 2200	Network Technologies	4
CMPT/CNET Technical Elective Course <sup>2</sup>		1
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
ACTG 1040	Principles Of Financial Accounting	3
BMGT 2700	Managing Diversity In The Workplace (or US Diversity Core) <sup>1</sup>	3
CNET 2100	Microsoft Operating Systems	3
CNET 2150	Computer Hardware	3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
<b>Fourth Term</b>		
ACTG 1050	Principles Of Management Accounting	3
BMGT 1500	Workplace Communication And Presentations	3
CNET 2300	Network Operating Systems II	4
CNET 2410	Network Services and Infrastructures	3
Natural Sciences Core <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
<b>Total Hours</b>		<b>60-61</b>

<sup>1</sup> Select from approved general education/university core course work, see degree audit for course selection.

<sup>2</sup> Major elective, see degree audit or academic advisor for course selection.

- PLO 1: Demonstrate the ability to install, configure and maintain network hardware.
- PLO 2: Demonstrate the ability to configure and maintain the business' internal network.
- PLO 3: Demonstrate the ability to manage network security tools such as a firewall or anti-virus system.
- PLO 4: Demonstrate the ability to configure and upgrade network software.
- PLO 5: Demonstrate the ability to develop and maintain backups and restore systems.
- PLO 6: Demonstrate the ability to install and support any networked telecommunication device.



## AAB-Business Management Technology

minimum 60 hours

Did you know that many entrepreneurs do not possess the management skills necessary to keep their businesses operating? Business management technology prepares students for supervisory or management positions in the service and production industries. This associate degree program provides students with the necessary skills for small business ownership.

Business management technology professionals are trained in the areas of planning, organizing and supervising. In addition, students gain experience in accounting and computer applications, which are vital subjects in the modern workplace.

Below is a sample plan of study. Consult your degree audit for your program requirements.

### Associate of Applied Business in Business Management Technology

- Students are required to successfully complete a minimum of 60 semester hours with an overall grade point average of 2.0 or higher.
- Students should be academically prepared to be placed into MATH 1180 or MATH 1200 at a minimum.
- Students should consult their Degree Audit for coursework that fulfills course requirements in the University Core.
- Students may use the associate degree to go on to the BAOT for 2+2 bachelor degree completion.

First Term		Hours
BUAD 1000	Orientation For Business Students	1
BMGT 1010	Business Principles	3
ENGL 1110	College Composition I	3
Select one of the following:		3-4
MATH 1180	Reasoning With Mathematics	
MATH 1200	Mathematical Modeling and Problem Solving	
MATH 1320	College Algebra	
CMPT 1100	Microsoft Office Applications	3
Select one of the following Social Science Core: <sup>1</sup>		3
ECON 1010	Introduction To Economic Issues	
ECON 1150	Principles Of Macroeconomics	
ECON 1200	Principles Of Microeconomics	
<b>Hours</b>		<b>16-17</b>
Second Term		
ENGL 2960	Professional and Business Writing	3
BMGT 1500	Workplace Communication And Presentations	3
BMGT 2110	Managing In A Global Economy	3
CMPT 1430	Microsoft Word	2

Arts/Humanities Core <sup>1</sup>		3
<b>Hours</b>		<b>14</b>
Third Term		
BMGT 2010	Workplace Management	3
ACTG 1040	Principles Of Financial Accounting	3
BMGT 2050	Small Business Management	3
BMGT 2700	Managing Diversity In The Workplace	3
Natural Sciences Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>
Fourth Term		
ACTG 1050	Principles Of Management Accounting	3
ACTG 2630	Payroll Accounting	1
BMGT 2030	Supervision	3
CMPT 1410	Microsoft Excel Spreadsheet Application	2
MARS 1010	Marketing Principles	3
Arts/Humanities Core		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>60-61</b>

<sup>1</sup> Select from approved general education/university core course work, see degree audit for course selection.

## ATS Technical Studies

Minimum 60 hours

COBI's interdisciplinary program in technical studies is useful for students who want to gain technical expertise in more than one discipline. Students must have an approved educational plan in order to be eligible for any A.T.S. program. Students explore their interests in a variety of technical areas, achieve specific career goals and have the opportunity to apply their credits to a bachelor's degree in Applied Organizational Technology (p. 515) through the College of Business and Innovation.

Code	Title	Hours
Degree Requirements		
English Composition		6
General Education/University CORE Requirements <sup>1</sup>		15
Technical Field ( <a href="https://catalog.utoledo.edu/undergraduate/business-innovation/department-applied-organizational-technology/1/">https://catalog.utoledo.edu/undergraduate/business-innovation/department-applied-organizational-technology/1/</a> )		15
Technical Field ( <a href="https://catalog.utoledo.edu/undergraduate/business-innovation/department-applied-organizational-technology/2/">https://catalog.utoledo.edu/undergraduate/business-innovation/department-applied-organizational-technology/2/</a> )		12
Occupational Objective/Additional Technical Competence		12
<b>Total Hours</b>		<b>60</b>

<sup>1</sup> Including Humanities, Social Science, Natural Science, Multicultural and Math areas.

**Technical Fields and Occupational Objectives must be planned in coordination with an academic adviser in the College of Business and Innovation.**

Below is a sample Plan of Study Technical Studies - Graphic Design. Consult your degree audit for your program requirements.

## Associate of Technical Studies Focus Graphic Design

- Students are required to successfully complete a minimum of 60 semester hours with an overall grade point average of 2.0 or higher.
- Students should be academically prepared to be placed into MATH 1180 or MATH 1200 at a minimum.
- Students should consult their Degree Audit for coursework that fulfills course requirements in the University Core. The ATS degree is individualized with this popular focus being a possible direction for completion. The focus is not specified in the degree.
- Students may use the associate degree to go on to the BAOT for 2+2 bachelor degree completion.

Course	Title	Hours
<b>First Term</b>		
BUAD 1000	Orientation For Business Students	1
ENGL 1110	College Composition I	3
BMGT 2700	Managing Diversity In The Workplace (or US Diversity Core) <sup>1</sup>	3
CMPT 1100	Microsoft Office Applications	3
Social Sciences Core <sup>1</sup>		3
BMGT 1010	Business Principles	3
<b>Hours</b>		<b>16</b>
<b>Second Term</b>		
ENGL 2960	Professional and Business Writing	3
BMGT 2010	Workplace Management	3
CMPT 1550	Adobe Acrobat	3
BMGT 1500	Workplace Communication And Presentations	3
Arts/Humanities Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>
<b>Third Term</b>		
CMPT 1530	Beginning Adobe Photoshop	3
Select one of the following:		3-4
MATH 1180	Reasoning With Mathematics	
MATH 1200	Mathematical Modeling and Problem Solving	
MATH 1320	College Algebra	
CMPT 1520	Beginning Adobe Illustrator	3
CMPT 1510	Digital Design Fundamentals	3
COMM 2500	Social Media I: Introduction to Social Media	3
<b>Hours</b>		<b>15-16</b>
<b>Fourth Term</b>		
CMPT 2410	Adobe InDesign Desktop Publishing	3
CMPT 2530	Advanced Adobe Photoshop <sup>2</sup>	3

COMM 2000	Media Communication And Society	3
MARS 1010	Marketing Principles	3
Natural Sciences Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>61-62</b>

<sup>1</sup> Select from approved University Core course work, see Degree Audit for course selections.

<sup>2</sup> Major elective, see degree audit or academic advisor for course selection.

### Sample Full-Time Plan of Study - Technical Studies

## Associate of Technical Studies

- Students are required to successfully complete a minimum of 60 semester hours with an overall grade point average of 2.0 or higher.
- Students should be academically prepared to be placed into MATH 1180 or MATH 1200 at a minimum.
- Students must consult with an adviser to plan out this individualized degree program and discuss specific options for course work towards the two Technical Fields and the Occupational Objective/Technical Competence area.
- Students should consult their Degree Audit for coursework that fulfills course requirements in the University Core.
- Students may use the associate degree to go on to the BAOT for 2+2 bachelor degree completion.

Course	Title	Hours
<b>First Term</b>		
BUAD 1000	Orientation For Business Students	1
ENGL 1110	College Composition I	3
Select one of the following:		3-4
MATH 1180	Reasoning With Mathematics	
MATH 1200	Mathematical Modeling and Problem Solving	
MATH 1320	College Algebra	
Technical Field #1 <sup>2</sup>		3
Technical Field #2 <sup>2</sup>		3
Social Science Core <sup>1</sup>		3
<b>Hours</b>		<b>16-17</b>
<b>Second Term</b>		
ENGL 2960	Professional and Business Writing	3
Technical Field #1 <sup>2</sup>		3
Technical Field #2 <sup>2</sup>		3
Occupational Objective/Tech Competence <sup>2</sup>		3
Arts/Humanities Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>
<b>Third Term</b>		
Technical Field #1 <sup>2</sup>		3
Technical Field #2 <sup>2</sup>		3
Technical Field #2 <sup>2</sup>		3
Occupational Objective/Tech Competence <sup>2</sup>		3

Natural Science Core <sup>1</sup>	3
<b>Hours</b>	<b>15</b>
<b>Fourth Term</b>	
Technical Field #1 <sup>2</sup>	3
Technical Field #2 <sup>2</sup>	3
Occupational Objective/Tech Competence <sup>2</sup>	3
Occupational Objective/Tech Competence <sup>2</sup>	3
Arts/Humanities Core <sup>1</sup>	3
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>61-62</b>

<sup>1</sup> Select from approved University Core course work, see Degree Audit for course selections.

<sup>2</sup> Major elective, see degree audit or academic advisor for course selection.

- PLO 1: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior.
- PLO 2: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community.
- PLO 3: Business Acumen – Each student can identify, interpret, evaluate and suggest solutions in the operational dimensions of business.
- PLO 4: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness.

## Digital Communication Applications Certificate

These three courses comprise the foundation of the Adobe design suite of software. Students who complete these classes will have a marketable basis of design knowledge and experience that will prepare them for the successful completion of both on-line and print projects.

Code	Title	Hours
CMPT 1520	Beginning Adobe Illustrator	3
CMPT 1550	Adobe Acrobat	3
CMPT 2410	Adobe InDesign Desktop Publishing	3
<b>Total Hours</b>		<b>9</b>

## Department of Finance

Kainan Wang, Chair

The John B. and Lillian E. Neff Department of Finance offers an all-inclusive Finance major that readies students for rewarding careers in Corporate Finance, Financial Institutions, and Financial Services firms. The program lays a solid foundation through courses covering corporate finance, personal financial planning, investment analysis, financial markets and institutions, and risk management using derivatives. The department's practical approach to education is reflected in its courses such as financial modeling with Excel, financial data analytics, student

management portfolio practicum, and internships, which give students hands-on experience in the field. Additionally, the department's generous endowment provides students with an array of financial data through the FactSet data platform. Upon graduation, our students are equipped with the skills and knowledge necessary for careers in investment and commercial banking, corporate financial planning and analysis, risk management, investment analysis, and financial advising.

## Degree Offered

- BBA Finance (p. 529)

### FINA 2000 Personal Investing

[3 credit hours]

This course features a real time stock market simulation. Students will be able to trade securities and track their performance throughout the semester. Learn about different types of investments including: stocks, bonds, mutual funds, real estate, options, and futures. Not applicable toward finance major.

**Term Offered:** Spring, Summer, Fall

### FINA 3060 Personal Finance

[3 credit hours]

This course covers the fundamentals of personal finance and will help you make informed decisions in your financial future. Topics included: how to manage credit, planning for retirement, mortgages and home ownership, understanding life insurance, types of mutual funds, personal taxation principles, how loans work, and estate planning. Not applicable toward finance major.

**Term Offered:** Spring, Summer, Fall

### FINA 3480 Investments

[3 credit hours]

This course introduces history of risk-returns trade-off, investment process, different investment securities and financial markets in which financial assets traded. In addition, modern portfolio theory, risk-return trade-off, and performance evaluation are explained in detail.

**Prerequisites:** BUAD 3040 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

### FINA 3500 International Business Finance

[3 credit hours]

Examines the role of a financial manager in international transactions. The international environment and the role of international asset markets are emphasized.

**Prerequisites:** BUAD 3040 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### FINA 3600 Risk Management

[3 credit hours]

Investigates non-speculative risks and the methods used to deal with them. Emphasizes on the insurance mechanism. Explores the functional aspect of the insurance operations.

**Prerequisites:** BUAD 3040 with a minimum grade of D-

**Term Offered:** Summer, Fall



**FINA 3890 Financial Modeling with Excel**

[3 credit hours]

This course help students develop spreadsheet modeling skills necessary to evaluate common financial problems encountered. The course provides hands-on experience in obtaining financial data and using Excel to manipulate and analyze data for a wide variety of subjects in finance.

**Prerequisites:** BUAD 3040 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**FINA 4080 Intermediate Financial Management**

[3 credit hours]

This course explores corporate financial decision making in depth. Topics include financial statement analysis, financial planning, capital budgeting, working capital management, and capital structure.

**Prerequisites:** BUAD 3040 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**FINA 4090 Financial Markets And Institutions**

[3 credit hours]

The course explores operations and functions of financial markets and institutions. The emphasize is on the interest rate theory, the role of the Federal Reserve System and the government in establishing monetary policy and providing regulation, management of institutions, and internationalization.

**Prerequisites:** BUAD 3040 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**FINA 4100 Security Analysis & Portfolio Management**

[3 credit hours]

Emphasizes the importance of portfolio management techniques and evaluation. Techniques of financial statement analysis, economic analysis, industry analysis, theoretical issues of efficient markets, technical analysis and fundamental analysis.

**Prerequisites:** BUAD 3040 with a minimum grade of C

**Term Offered:** Spring, Fall

**FINA 4200 Fixed Income Securities**

[3 credit hours]

This course explores the fixed income securities markets, institutions, and instruments. We will analyze the pricing, risks, and risk management of fixed income securities.

**Prerequisites:** BUAD 3040 with a minimum grade of C

**Term Offered:** Spring

**FINA 4340 Derivatives Securities and Markets**

[3 credit hours]

This course explores the derivative securities markets and instruments. It covers the valuation, risks, and risk management aspect of derivative securities.

**Prerequisites:** BUAD 3040 with a minimum grade of C

**Term Offered:** Spring, Fall

**FINA 4480 Student Managed Portfolio**

[3 credit hours]

Course provides selected students active portfolio management training utilizing an endowed portfolio. Student Portfolio Managers apply equity selection analysis and portfolio risk analytics, with fiduciary responsibilities.

**Prerequisites:** FINA 3480 with a minimum grade of C

**Term Offered:** Spring, Fall

**FINA 4670 Advanced Financial Management**

[3 credit hours]

Applies financial analysis techniques to real-world problems using computer simulations and case studies. Topics include capital budgeting, working capital management, cost of capital, capital structure, leasing, valuation of levered firms, and options.

**Prerequisites:** FINA 3480 with a minimum grade of D- and FINA 4080 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**FINA 4900 Seminar In Finance**

[3 credit hours]

Seminar course in advanced and specialized topics. Current readings from finance journals. Written paper required.

**Prerequisites:** (FINA 3480 with a minimum grade of D- and FINA 4080 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**FINA 4940 Finance Internship**

[1-3 credit hours]

This course explores special topics in the field of finance in detail. Topics varies and chosen as need required.

**Prerequisites:** BUAD 3040 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**FINA 4990 Independent Study: Readings And Research In Finance**

[1-3 credit hours]

An independent, professor supervised, course dealing with an in depth investigation of a financial area not covered adequately in another listed course.

**Prerequisites:** (FINA 3480 with a minimum grade of D- and FINA 4080 with a minimum grade of D- and FINA 4090 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

## BBA Finance

The John B. and Lillian E. Neff Department of Finance offers an all-inclusive Finance major that readies students for rewarding careers in Corporate Finance, Financial Institutions, and Financial Services firms. The program lays a solid foundation through courses covering corporate finance, personal financial planning, investment analysis, financial markets and institutions, and risk management using derivatives. The department's practical approach to education is reflected in its courses such as financial modeling with Excel, financial data analytics, student management portfolio practicum, and internships, which give students hands-on experience in the field. Additionally, the department's generous endowment provides students with an array of financial data through the FactSet data platform. Upon graduation, our students are equipped with the skills and knowledge necessary for careers in investment and commercial banking, corporate financial planning and analysis, risk management, investment analysis, and financial advising.

For this area of specialization, students must earn a grade of C (2.0) or higher in BUAD 3040 as well as their FINA courses and complete a total of 7 courses/21 hours in the area of specialization. Neither FINA 2000 nor FINA 3060 may count toward credit for the FINA major.

Code	Title	Hours
<b>Required Courses</b>		
FINA 3480	Investments	3



FINA 4080	Intermediate Financial Management	3
FINA 4090	Financial Markets And Institutions	3
Select one of the following:		3
FINA 3890	Financial Modeling with Excel	
FINA 4100	Security Analysis & Portfolio Management	
FINA 4200	Fixed Income Securities	
FINA 4340	Derivatives Securities and Markets	
FINA 4670	Advanced Financial Management	

**Elective Courses**

Select three of the following:		9
FINA 3500	International Business Finance	
FINA 3600	Risk Management	
FINA 3890	Financial Modeling with Excel <sup>1</sup>	
FINA 4100	Security Analysis & Portfolio Management <sup>1</sup>	
FINA 4200	Fixed Income Securities <sup>1</sup>	
FINA 4340	Derivatives Securities and Markets <sup>1</sup>	
FINA 4480	Student Managed Portfolio <sup>2</sup>	
FINA 4670	Advanced Financial Management <sup>1</sup>	
FINA 4900	Seminar In Finance	
FINA 4940	Finance Internship <sup>2</sup>	

<sup>1</sup> If not selected as a required course.

<sup>2</sup> With departmental approval.

**Early admission/bridge program – BBA-MBA**

Undergraduate students accepted in the BBA-MBA option will be admitted to the MBA program and allowed to complete up to three **graduate level classes** (nine credit hours) during their final academic year of **undergraduate studies**. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in the MBA program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied **to completion of both undergraduate and MBA degree requirements**. The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the MBA joint program, 2) only BUAD 6100, BUAD 6300, BUAD 6400, BUAD 6500, BUAD 6800 may be included in the approved nine semester hours of graduate credit taken as an undergraduate. 3) Up to 9 credit hours of graduate business courses can be used toward the 3000/4000-level business electives or extra hours toward their BBA.

However, they may not count any of those 9 credit hours toward any specific undergraduate major or minor requirements, nor may they count toward any required undergraduate business core requirements (i.e., no BUAD-designated courses). Students must have at the time of application 1) a minimum of 3.0 cumulative undergraduate grade point average that will include undergraduate credits earned at other institutions and transferred to UT, 2) undergraduate advisor's approval, and 3) graduate advisor's approval. Students interested in the joint BBA / MBA program must submit 1) a letter of interest, 2) a completed graduate admission application, 3) at least 2 letter(s) of recommendation from faculty members. After successful completion of the application process, students will apply to the graduate program.

**Combined bachelor's to master's – BBA-MABA**

Undergraduate students accepted to the BBA-MABA pipeline program option will be admitted to the Master of Applied Business Analytics (MABA) program and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) one or two courses from the following MABA core courses (INFS 6150, OSCM 6250 or OSCM 6350) and one of the following courses based on the student chosen functional area (BUAD 6100, BUAD 6200, BUAD 6300, BUAD 6600, BUAD 6800 or INFS 6050) may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

Below is a sample plan of study. [Please see pre-business/lower division requirements BBA plan \(p. 514\) for terms one through four and additional information.](#) Consult your degree audit for your program requirements.

**Accrediting Body: Association to Advance Collegiate Schools of Business (AACSB) International.**

First Term		Hours
BUAD 1000	Orientation For Business Students	1
BUAD 1010	Introduction To Business	3
ENGL 1110	College Composition I	3
Social Science Core <sup>1</sup>		3
Mathematics Core <sup>5</sup>		3
Arts/Humanities Core <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
Second Term		
BUAD 1020	Micro-Computer Applications In Business	3
ENGL 2960	Professional and Business Writing	3
ECON 1150	Principles Of Macroeconomics	3
Natural Sciences Core <sup>1</sup>		3
Natural Sciences Laboratory <sup>1</sup>		1
Diversity of US <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
Third Term		
BUAD 2000	Career Development I	1

BUAD 2020	Information Technology Management	3
BUAD 2030	Executive Communication Essentials	3
BUAD 2040	Financial Accounting Information	3
BUAD 2060	Business Statistics	3
ECON 1200	Principles Of Microeconomics	3
<b>Hours</b>		<b>16</b>

**Fourth Term**

BUAD 2050	Accounting For Business Decision-Making	3
BUAD 2070	Business Analytics	3
BUAD 2080	Global Environment Of Business	3
Natural Science Core <sup>1</sup>		3
Arts/Humanities Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>

**Fifth Term**

BUAD 3000	Career Development II	1
BUAD 3010	Principles Of Marketing	3
BUAD 3020	Principles Of Manufacturing And Service Systems	3
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
BUAD 3040	Principles Of Financial Management	3
Non-US Diversity <sup>1</sup>		3
<b>Hours</b>		<b>16</b>

**Sixth Term**

BUAD 3470	The Legal And Ethical Environment Of Business	3
FINA 3480	Investments	3
FINA 4090	Financial Markets And Institutions	3
Minor/Business Elective <sup>2</sup>		3
Minor/Business Elective <sup>2</sup>		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

FINA 4080	Intermediate Financial Management	3
FINA Major Elective <sup>3</sup>		3
FINA Major Elective <sup>3</sup>		3
BUAD 4020	Senior Business Policy Forum	3
Elective		2
<b>Hours</b>		<b>14</b>

**Eighth Term**

FINA 4670	Advanced Financial Management <sup>4</sup>	3
Elective		3
FINA Major Elective <sup>3</sup>		3
Minor/Business Elective <sup>2</sup>		3
<b>Hours</b>		<b>12</b>

**Total Hours 120**

<sup>1</sup> Select from approved University core course work, see degree audit for course selection.

<sup>2</sup> Minor elective or 3000/4000 Business elective if no Business minor is selected.

<sup>3</sup> Finance major elective including internship, see degree audit for course selection.

<sup>4</sup> Select FINA 4670 or other approved senior level elective, see degree audit for course selection.

<sup>5</sup> Acceptable courses include MATH 1320, MATH 1340, MATH 1730, MATH 1750, MATH 1760, MATH 1850, MATH 1860, MA

- PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community.
- PLO 2: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.
- PLO 3: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound inferences from and use effective problem-solving and decision-making techniques.
- PLO 4: Business Acumen – Each Student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business.
- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity.
- PLO 6: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior.
- PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies.

## Department of Information Systems and Supply Chain Management

Paul Hong, Chair

The Department Of Information Systems and Supply Chain Management offers undergraduate programs in information systems, and operations and supply chain management. These degree programs prepare our graduates for a range of career options that intersect people, processes, and technology.

### Degrees Offered

- BBA Information Systems (p. 534)
- BBA Operations & Supply Chain Management (p. 536)



**INFS 3150 Principles Of Structured Computer Programming And Problem Solving**

[3 credit hours]

Introduction to fundamental constructs of computer programming. This course introduces data types, variables, constants, arrays, objects, properties, methods, arguments, events, subroutines, functions, data handling, and program control structures. Additionally the course helps students develop skills and logical reasoning used in solving business problems.

**Prerequisites:** BUAD 1020 with a minimum grade of D- or CMPT 1100 with a minimum grade of D- or Business Computer Prof-Score with a score of 39

**Term Offered:** Spring, Summer, Fall

**INFS 3250 Business Data Analysis & Reporting**

[3 credit hours]

This course is designed to acquaint students with the application and use of integrated software. The course will provide students with hands-on experience in data analysis and manipulation, macro recording and editing and other advanced features and functions of popular business software packages. Students will gain skills in computer based report writing and data visualization techniques.

**Prerequisites:** BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**INFS 3370 Business Data Communications**

[3 credit hours]

An introduction to data communications in business. Topics include local-area and wide-area networks, including the Internet; hardware and media; network topologies; client-server networks; and network operating system software.

**Prerequisites:** BUAD 1020 with a minimum grade of D- or CMPT 1100 with a minimum grade of D- or Business Computer Prof-Score with a score of 39

**Term Offered:** Spring, Fall

**INFS 3380 Web Application Development I**

[3 credit hours]

An introduction to business application program development on the web using contemporary technologies with emphasis on client-side applications. Implications of information technology projects on organizations will be discussed.

**Prerequisites:** BUAD 1020 with a minimum grade of D- or CMPT 1100 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**INFS 3400 Principles of Information Systems Security**

[3 credit hours]

This course aims to give students a broad understanding of technical and business issues in information systems security, systems security models, analysis of process and technology in systems security and security policies leading to information assurance.

**INFS 3770 Introduction To Database Systems**

[3 credit hours]

In this course, the design and implementation of database management systems are studied. Students will develop significant skills in data modeling, database design and SQL. Students will work in teams developing a database application.

**Prerequisites:** INFS 3150 with a minimum grade of D- and (BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

**INFS 3780 Enterprise Wide Information Systems Management**

[3 credit hours]

Introduction to ERP, Roles of SCM and CRM in Business Environment, Major Business Processes relating to functional areas of Business in an integrated software environment. Extensive hands-on exercises using an ERP software.

**Prerequisites:** BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-

**Term Offered:** Fall

**INFS 3980 Contemporary Topics**

[3 credit hours]

Selected current topics in Information Systems practice, trends and technology.

**Prerequisites:** BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-

**Term Offered:** Spring, Fall

**INFS 4100 Business Intelligence Using Big Data**

[3 credit hours]

This course aims to give students a broad understanding of technical and business issues in data analytics. Students will gain proficiency with reporting, data visualization and prediction using SAP Business Warehouse.

**Prerequisites:** BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-

**INFS 4300 Web Application Development II**

[3 credit hours]

Address web architecture, web server administration and security issues; analyze, design, develop, and implement extensive database oriented business processes using server-side and client-side processing.

**Prerequisites:** (INFS 3770 with a minimum grade of D- and INFS 3380 with a minimum grade of D-)

**Term Offered:** Spring

**INFS 4510 Business Systems Analysis and Design**

[3 credit hours]

Analysis, design and implementation of business information systems will be studied using Case tools and other appropriate software systems. Will also emphasize management of organizational change brought about by information technology projects.

**Prerequisites:** (BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-) and INFS 3150 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**INFS 4620 Enterprise Database Systems**

[3 credit hours]

In-depth exposure to database concepts including relational and Object Data Models, normalization, logical design, stored functions, procedures, triggers, forms and reports will be explored using a business database package.

**Prerequisites:** INFS 3770 with a minimum grade of D- and (BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-)

**Term Offered:** Spring

**INFS 4680 Enterprise Systems Implementation and Integration**

[3 credit hours]

This course will provide students an overview of the fundamental business processes and examination of how business processes interact with SAP ERP including the system configuration and implementation. Issues. Students will gain a deep appreciation for the role of enterprise systems in managing processes from multiple functional perspectives. Also, students will work on various hands-on exercises including configuration of a fictitious company and implementation of business rules using an enterprise system.

**Prerequisites:** BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-

**INFS 4940 Info Systems Internship**

[3 credit hours]

A prearranged work-study program where students specializing in computer systems, operations management or decision sciences obtain on-the-job experience while learning and applying the basic concepts and techniques of their respective areas.

**Term Offered:** Spring, Summer, Fall

**INFS 4990 Independent Study: Readings And Research**

[1-3 credit hours]

Individual student study of a topic of interest to both the faculty member and student. Students are responsible for finding a faculty member to sponsor readings and research.

**Term Offered:** Spring, Summer, Fall

**OSCM 3340 Quality Management and Process Improvement**

[3 credit hours]

Covers major aspects of lean processes and managing total quality functions in manufacturing/service operations. Includes: quality assurance, process control techniques, product liability and organization of the quality function as well as process improvement tools such as lean principles, process analysis.

**Prerequisites:** BUAD 3020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**OSCM 3610 Operations Planning and Scheduling**

[3 credit hours]

A study of operations planning and its relation to organizational goals. Students learn concepts of developing materials and resources requirement plans, capacity management, just-in-time, resource scheduling in manufacturing and service organizations. Emerging concepts in the discipline will also be discussed.

**Prerequisites:** BUAD 3020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**OSCM 3660 Strategic Sourcing**

[3 credit hours]

Relationship between supply management and firm's strategic goals, state-of-the-art supplier management, competing through effective supplier relationships, commodity strategy development, supplier negotiations, supplier selection and quality management, managing the RFP/RFQ process, cost management, and latest trends in sourcing and covered in the course.

**Prerequisites:** BUAD 3020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**OSCM 4150 Supply Chain Analytics and Cases**

[3 credit hours]

This course focuses on developing skills in using techniques and software tools for the design and operational control of supply chains. Students will investigate issues relating to configuring supply chain networks (distribution systems), inventory deployment, planning and routing of transportation systems, warehouse and plant location and contract design etc. The focus will be on applications to practical situations. Necessary skills will be developed using cases, projects and presentations.

**Prerequisites:** BUAD 3020 with a minimum grade of D-

**OSCM 4210 Project Management**

[3 credit hours]

This course covers planning, organizing and controlling projects. Topics such as project selection, scheduling, budgeting, resource management, project control, time-based competition and concurrent engineering will be discussed.

**Prerequisites:** BUAD 3020 with a minimum grade of D-

**OSCM 4250 Business Analytics-Techniques and Cases**

[3 credit hours]

This course provides an introduction to the analytical tools and techniques used in business for decision making with focus on using data visualization, and data mining techniques. It also familiarizes and equips students with prescriptive and evaluative techniques. Industrial grade software along with case studies will be used.

**Prerequisites:** BUAD 2070 with a minimum grade of D-

**OSCM 4500 Supply Chain Strategy**

[3 credit hours]

The course examines firms' strategic management of resources, and discusses its importance and benefits to its overall competitiveness. The purpose of the course is to provide students with an understanding of the content of firms' supply chain strategy and the processes by which they are developed and implemented. Topics covered in the course are related to operations/supply chain strategy, including environmental analysis, sustainability, product/service design, structure and infrastructure, coordination strategy, logistics and risk management.

**Prerequisites:** BUAD 3020 with a minimum grade of D- and MKTG 3130 with a minimum grade of D- and (OSCM 3340 with a minimum grade of D- and OSCM 3610 with a minimum grade of D- or OSCM 3660 with a minimum grade of D-)

**Term Offered:** Spring

**OSCM 4760 Sim Mod/Anlys Sply Chn System**

[3 credit hours]

This course provides an introduction to the use of computer simulation for business decision making. Students are introduced to modeling uncertainty in supply chain systems using various techniques including Monte Carlo simulation, waiting line analysis, discrete event simulation and other emerging techniques using simulation software (such as @Risk, Simul8 and ARENA) and business cases.

**Prerequisites:** BUAD 3020 with a minimum grade of D-

**OSCM 4940 Internship**

[3 credit hours]

A prearranged work study program where students specializing in OPMT or SCM optain on the job experience while learning and applying the basic concepts and techniques of their respective discipline.

**Term Offered:** Spring, Summer, Fall

**OSCM 4980 Contemporary Topics In Operations and Supply Chain Management**

[3 credit hours]

Selected current topics in Operations Management practice, trends and technology.

**Prerequisites:** BUAD 3020 with a minimum grade of D-

**Term Offered:** Spring, Fall

## BBA Information Systems

Information systems provides the student with business knowledge and technical skills required to enter the challenging and dynamic field of computer technology and information systems. The program produces business professionals with a strong aptitude for and understanding of technology. Through the program coursework, the student acquires knowledge and skills across a variety of topics and technologies including, but not limited to, database management, data-driven web apps, ERP systems, project management, business intelligence, data communications, systems analysis and software development and design. The program places emphasis on problem solving, understanding business processes and technologies and the ability to work with functional users and deliver technological solutions.

Students may choose one of two tracks: **Enterprise Business Systems or Business Analytics:**

Code	Title	Hours
<b>Enterprise Business Systems Requirements</b>		
INFS 3250	Business Data Analysis & Reporting	3
INFS 3150	Principles Of Structured Computer Programming And Problem Solving	3
INFS 3770	Introduction To Database Systems	3
INFS 3160		
INFS 4510	Business Systems Analysis and Design	3
OSCM 4210	Project Management (Electives)	3
Select one of the following Enterprise Business Systems Electives		
INFS 3370	Business Data Communications	3
INFS 3400	Principles of Information Systems Security	3
INFS 3780	Enterprise Wide Information Systems Management	3
INFS 3980	Contemporary Topics	3

INFS 4100	Business Intelligence Using Big Data	
INFS 4680	Enterprise Systems Implementation and Integration	
INFS 4940	Info Systems Internship	
<b>Total Hours</b>		<b>18</b>
<b>Business Analytics Requirements</b>		
INFS 3250	Business Data Analysis & Reporting	3
INFS 3150	Principles Of Structured Computer Programming And Problem Solving	3
INFS 3770	Introduction To Database Systems	3
INFS 4100	Business Intelligence Using Big Data	3
ACCT 3100	Data Analytics in Accounting	3
Select two of the following Business Analytics Electives		6
INFS 3160		
INFS 3400	Principles of Information Systems Security	
INFS 4680	Enterprise Systems Implementation and Integration	
INFS 4940	Info Systems Internship	
OSCM 4250	Business Analytics-Techniques and Cases	
<b>Total Hours</b>		<b>21</b>

**Early admission/bridge program – BBA-MBA**

Undergraduate students accepted in the BBA-MBA option will be admitted to the MBA program and allowed to complete up to three **graduate level classes** (nine credit hours) during their final academic year of **undergraduate studies**. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in the MBA program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied **to completion of both undergraduate and MBA degree requirements**. The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the MBA joint program, 2) only BUAD 6100, BUAD 6300, BUAD 6400, BUAD 6500, BUAD 6800 may be included in the approved nine semester hours of graduate credit taken as an undergraduate. 3) Up to 9 credit hours of graduate business courses can be used toward the 3000/4000-level business electives or extra hours toward their BBA.

However, they may not count any of those 9 credit hours toward any specific undergraduate major or minor requirements, nor may they count toward any required undergraduate business core requirements (i.e., no BUAD-designated courses). Students must have at the time of application 1) a minimum of 3.0 cumulative undergraduate grade point average that will include undergraduate credits earned at other institutions and transferred to UT, 2) undergraduate advisor's approval, and 3) graduate advisor's approval. Students interested in the joint BBA / MBA program must submit 1) a letter of interest, 2) a completed graduate admission application, 3) at least 2 letter(s) of recommendation from faculty members. After successful completion of the application process, students will apply to the graduate program.

**Combined bachelor's to master's – BBA-MABA**

Undergraduate students accepted to the BBA-MABA pipeline program option will be admitted to the Master of Applied Business Analytics (MABA) program and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) one or two courses from the following MABA core courses (INFS 6150, OSCM 6250 or OSCM 6350) and one of the following courses based on the student chosen functional area (BUAD 6100, BUAD 6200, BUAD 6300, BUAD 6600, BUAD 6800 or INFS 6050) may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

Below is a sample plan of study. Please see pre-business/lower division requirements BBA plan (p. 514) for terms one through four and additional information. Consult your degree audit for your program requirements.

**Accrediting Body: Association to Advance Collegiate Schools of Business (AACSB) International.**

First Term		Hours
BUAD 1000	Orientation For Business Students	1
BUAD 1010	Introduction To Business	3
ENGL 1110	College Composition I	3
MATH 1320	College Algebra <sup>4</sup>	3
Arts/Humanities Core <sup>1</sup>		3
Social Science Core <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
Second Term		Hours
BUAD 1020	Micro-Computer Applications In Business	3
ENGL 2960	Professional and Business Writing	3
ECON 1150	Principles Of Macroeconomics	3
Diversity of US <sup>1</sup>		3
Natural Sciences Core <sup>1</sup>		3
Natural Sciences Laboratory <sup>1</sup>		1
<b>Hours</b>		<b>16</b>
Third Term		Hours
BUAD 2000	Career Development I	1
BUAD 2020	Information Technology Management	3
BUAD 2030	Executive Communication Essentials	3

BUAD 2040	Financial Accounting Information	3
BUAD 2060	Business Statistics	3
ECON 1200	Principles Of Microeconomics	3
<b>Hours</b>		<b>16</b>
Fourth Term		Hours
BUAD 2050	Accounting For Business Decision-Making	3
BUAD 2070	Business Analytics	3
BUAD 2080	Global Environment Of Business	3
Arts/Humanities Core <sup>1</sup>		3
Natural Science Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>
Fifth Term		Hours
BUAD 3000	Career Development II	1
BUAD 3010	Principles Of Marketing	3
BUAD 3020	Principles Of Manufacturing And Service Systems	3
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
INFS 3150	Principles Of Structured Computer Programming And Problem Solving	3
Non-US Diversity <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
Sixth Term		Hours
BUAD 3470	The Legal And Ethical Environment Of Business	3
BUAD 3040	Principles Of Financial Management	3
INFS 3250	Business Data Analysis & Reporting	3
INFS 3770	Introduction To Database Systems	3
Minor or 3000/4000 Business Elective <sup>2</sup>		3
<b>Hours</b>		<b>15</b>
Seventh Term		Hours
BUAD 4020	Senior Business Policy Forum	3
INFS 4510 or INFS 4100		3
INFS 4940 Internship or INFS Elective <sup>3</sup>		3
Minor or 3000/4000 level Business <sup>2</sup>		3
Elective		2
<b>Hours</b>		<b>14</b>
Eighth Term		Hours
INFS 3160 or INFS Major Elective <sup>3</sup>		3
OSCM 4210 or ACCT 3100		3
Minor/Business Elective <sup>2</sup>		3
Elective		3
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Select from approved University core course work, see degree audit for course selection.

<sup>2</sup> Minor elective or 3000/4000 level Business elective if no Business minor is selected.

<sup>3</sup> INFS major elective including internship, see degree audit for course selection.



<sup>4</sup> Acceptable replacements include MATH 1260 or 1270 or 1340 or 1730 or 1750 or 1760 or 1850 or 1860 or 2450 or 2460

- PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community.
- PLO 2: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.
- PLO 3: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound inferences from and use effective problem-solving and decision-making techniques.
- PLO 4: Business Acumen – Each Student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business.
- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity.
- PLO 6: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior.
- PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies.

## BBA Operations & Supply Chain Management

Operations & Supply Chain Management specialization is designed for students who are interested in the revitalization and enhancing the competitiveness of America's industrial base or who want to pursue careers in the rapidly expanding service sector. Students will acquire the knowledge and skills to manage people and resources. They are given a broad overview of operations from product design, process selection, total quality management, production planning and scheduling, will understand sourcing, industrial marketing, logistics, transportation, quality, information systems, risk management as well as emerging practices in supply chain management and e-commerce.

Code	Title	Hours
<b>Operations &amp; Supply Chain Management Required Courses</b>		
OSCM 3340	Quality Management and Process Improvement	3
OSCM 3610	Operations Planning and Scheduling	3
OSCM 3660	Strategic Sourcing	3
OSCM 4500	Supply Chain Strategy	3
<b>Elective Courses</b>		
Select three of the following:		9
MKTG 3130	Supply Chain Management	
MKTG 4220	International Sourcing, Logistics And Transportation	
OSCM 4250	Business Analytics-Techniques and Cases	
OSCM 4420		
OSCM 4760	Sim Mod/Anlys Spplly Chn Systm	

OSCM 4940	Internship
OSCM 4150	Supply Chain Analytics and Cases
OSCM 4210	Project Management
OSCM 4450	
OSCM 4980	Contemporary Topics In Operations and Supply Chain Management
INFS 3780	Enterprise Wide Information Systems Management
INFS 4680	Enterprise Systems Implementation and Integration
<b>Total Hours</b>	<b>21</b>

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However, they may not count any of those 9 credit hours toward any specific undergraduate major or minor requirements, nor may they count toward any required undergraduate business core requirements (i.e., no BUAD-designated courses). Students must have at the time of application 1) a minimum of 3.0 cumulative undergraduate grade point average that will include undergraduate credits earned at other institutions and transferred to UT, 2) undergraduate advisor's approval, and 3) graduate advisor's approval. Students interested in the joint BBA / MBA program must submit 1) a letter of interest, 2) a completed graduate admission application, 3) at least 2 letter(s) of recommendation from faculty members. After successful completion of the application process, students will apply to the graduate program.

### Combined bachelor's to master's – BBA-MABA

Undergraduate students accepted to the BBA-MABA pipeline program option will be admitted to the Master of Applied Business Analytics (MABA) program and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an



undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

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BUAD 1010	Introduction To Business	3
ENGL 1110	College Composition I	3
MATH 1320	College Algebra <sup>4</sup>	3
Social Science Core <sup>1</sup>		3
Arts/Humanities Core <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
Second Term		Hours
BUAD 1020	Micro-Computer Applications In Business	3
ENGL 2960	Professional and Business Writing	3
ECON 1150	Principles Of Macroeconomics	3
Diversity of US <sup>1</sup>		3
Natural Sciences Core <sup>1</sup>		3
Natural Sciences Laboratory <sup>1</sup>		1
<b>Hours</b>		<b>16</b>
Third Term		Hours
BUAD 2000	Career Development I	1
BUAD 2020	Information Technology Management	3
BUAD 2030	Executive Communication Essentials	3
BUAD 2040	Financial Accounting Information	3
BUAD 2060	Business Statistics	3
ECON 1200	Principles Of Microeconomics	3
<b>Hours</b>		<b>16</b>
Fourth Term		Hours
BUAD 2050	Accounting For Business Decision-Making	3
BUAD 2070	Business Analytics	3
BUAD 2080	Global Environment Of Business	3
Arts/Humanities Core <sup>1</sup>		3
Natural Science Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>

Fifth Term		Hours
BUAD 3000	Career Development II	1
BUAD 3010	Principles Of Marketing	3
BUAD 3020	Principles Of Manufacturing And Service Systems	3
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
BUAD 3040	Principles Of Financial Management	3
Non-US Diversity <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
Sixth Term		Hours
BUAD 3470	The Legal And Ethical Environment Of Business	3
OSCM 3340	Quality Management and Process Improvement	3
OSCM 3660	Strategic Sourcing	3
OSCM Major Elective <sup>3</sup>		3
Minor/Business Elective <sup>2</sup>		3
<b>Hours</b>		<b>15</b>
Seventh Term		Hours
BUAD 4020	Senior Business Policy Forum	3
OSCM 3610	Operations Planning and Scheduling	3
Minor/Business Elective <sup>2</sup>		3
OSCM Major Elective <sup>3</sup>		3
Elective		2
<b>Hours</b>		<b>14</b>
Eighth Term		Hours
OSCM 4500	Supply Chain Strategy	3
OSCM Major Elective <sup>3</sup>		3
Minor/Business Elective <sup>2</sup>		3
Elective		3
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Select from approved University core course work, see degree audit for course selection.

<sup>2</sup> Minor elective or 3000/4000 level Business elective if no Business minor is selected.

<sup>3</sup> OSCM major elective including internship, see degree audit for course selection.

<sup>4</sup> Acceptable replacements include MATH 1260 or 1270 or 1340 or 1730 or 1750 or 1760 or 1850 or 1860 or 2450 or 2460

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inferences from and use effective problem-solving and decision-making techniques.

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- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity.
- PLO 6: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior.
- PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies.

## Department of Management

Laurence Fink, Chair

The Department of Management in the Neff COBI is a growing department that houses the Human Resource Management, General Management, Organizational Leadership and Management, and Entrepreneurship and Innovation majors. It provides cutting-edge programs and resources for students, faculty, and practitioners to develop the leadership, innovation and management, and human resource expertise required by organizations in the 21st century. The department is committed to excellence in all programs, practices, and research activities. We believe in collaborating with other departments, colleges, community, and business organizations to keep our programs viable and relevant. The department prides itself on having an outstanding reputation for excellence in teaching and research because of our dedication to providing the best service to our students. Our faculty and staff are dedicated to providing students with an excellent educational experience while simultaneously contributing to the management domain through research-based scholarship.

## Degrees Offered

- BBA Entrepreneurship and Innovation (p. 540)
- BBA Human Resource Management (p. 541)
- BBA Management (p. 542)
- BBA Organizational Leadership and Management (p. 545)

### EFSB 3480 Entrepreneurial Finance

[3 credit hours]

Course focuses on basics of using financial tools to create and analyze financial statements in new ventures and to understand the sources and management of capital for start-ups and growing businesses.

**Prerequisites:** BUAD 2040 with a minimum grade of D- or ACTG 1040 with a minimum grade of D-

**Term Offered:** Fall

### EFSB 3500 Introduction To Entrepreneurship for Non-Business Students

[3 credit hours]

Course provides an extensive overview of issues and opportunities involved in starting new businesses. Focus is on the entrepreneurial environment and opportunities, technopreneurship, and the entrepreneurial mindset. (This course may not be taken with or after taking EFSB 3590).

**Term Offered:** Fall

### EFSB 4010 Growing Family And Entrepreneurial Businesses

[3 credit hours]

Advanced study of issues pertaining to family and entrepreneurial businesses. Issues of family psychology, growth strategies, financing, valuation, and harvesting the business are studied using hands-on consulting and case analysis.

**Prerequisites:** (EFSB 3480 with a minimum grade of D- and EFSB 4590 with a minimum grade of D-) or (BUAD 3040 with a minimum grade of D- and EFSB 4590 with a minimum grade of D-)

**Term Offered:** Spring, Fall

### EFSB 4590 Entrepreneurship and Small Business Management

[3 credit hours]

A study of entrepreneurship and the process of starting and/or managing a new venture. Tools for developing and managing in all areas in a new or small business are applied in hands-on consulting with local companies and case analysis.

**Prerequisites:** EFSB 3480 (may be taken concurrently) with a minimum grade of D- or BUAD 3040 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Fall

### EFSB 4690 Strategic Management of Innovation

[3 credit hours]

The course addresses the entire commercialization process from an innovative idea to market. Students will learn how organizations can increase innovative productivity to develop an understanding of strategic management.

**Term Offered:** Spring, Fall

### EFSB 4900 Cannabis Entrepreneurship

[3 credit hours]

EFSB 4900/6900 is an entrepreneurship course with a core focus on business verticals in the cannabis industry. The course will cover a substantial body of knowledge, concepts and tools that entrepreneurs need to know prior to and while starting their new ventures.

**Term Offered:** Spring, Fall

### EFSB 4940 Internship In Entrepreneurship And Family Business

[3 credit hours]

Receive practical entrepreneurship experience working in a family or small business.

**Term Offered:** Spring, Summer, Fall

### EFSB 4980 Special Topics In Entrepreneurship And Family Business

[3 credit hours]

This course is designed to focus on current issues in entrepreneurship and family business.

### EFSB 4990 Independent Study

[1-3 credit hours]

Individually supervised study in Entrepreneurship and Family Business. Student must submit a proposal to be approved by the Program Advisor or Chair prior to enrolling in the course.

**Term Offered:** Spring, Summer, Fall

**HURM 3220 Human Resource Management**

[3 credit hours]

Introduction to the field of human resource management. It is designed for students planning careers in human resources or those who simply wish to supplement their skills in personnel matters commonly of concern to all managers.

**Term Offered:** Spring, Summer, Fall**HURM 4640 Benefits, Health & Wellness**

[3 credit hours]

Includes planning and administering mandatory and voluntary benefit programs, cost containment strategies and benefit communication programs. Development and administration of Employee Assistance Programs and employee wellness programs are also covered.

**Prerequisites:** HURM 3220 with a minimum grade of D-**Term Offered:** Spring, Fall**HURM 4650 Compensation**

[3 credit hours]

Design and administration of compensation systems, including job evaluation, skill-based pay, salary surveys, pay level decisions, pay structures, executive and special employee group compensation programs, and budget and administrative issues.

**Prerequisites:** HURM 3220 with a minimum grade of D-**Term Offered:** Spring, Fall**HURM 4660 Planning, Selection, and Recruitment**

[3 credit hours]

Covers aspects of human resource planning, including Affirmative Action and succession planning, developing legally defensible selection and recruitment methods, and career development.

**Prerequisites:** HURM 3220 with a minimum grade of D-**Term Offered:** Spring, Fall**HURM 4710 Human Capital Performance and Development**

[3 credit hours]

This course has been designed to give students the critical skills necessary to improve the performance of individuals and work groups in competitive, dynamic organizations. Specifically, the focus will be on HRM best practices in performance management and training and development that, when brought together, help to create competitive advantage with people.

**Prerequisites:** HURM 3220 with a minimum grade of C-**Term Offered:** Spring, Fall**MGMT 3630 Conflict Management: Mediation & Negotiations**

[3 credit hours]

Course is designed to develop negotiation and conflict management skills. Students will learn to apply these skills in distributive and integrative negotiation situations using cases, role-plays and exercises.

**Term Offered:** Spring, Summer, Fall**MGMT 3700 Best Practices in Diversity Leadership**

[3 credit hours]

Organizations must be able to draw on their most important resource – the skills of the workforce. With the increasing richness of diversity in the world and in the workforce, organizational leaders need to expand their outlook and use creative strategies to effectively leverage diversity in the workplace.

Multicultural US Diversity

**MGMT 3770 Ethics In Leadership And Management**

[3 credit hours]

The ethical dilemmas faced by organizational leaders are explored and a four-lens model of ethical decision-making is presented. Students will practice using the model to resolve common ethical dilemmas for new and experienced managers.

**Term Offered:** Spring, Summer, Fall**MGMT 3910 Research In Management**

[3 credit hours]

In-depth independent research work under the supervision of a faculty member.

**Term Offered:** Spring, Summer, Fall**MGMT 4250 Performance Management For Individuals And Teams**

[3 credit hours]

Course examines the process and implementation of performance management systems at both individual and group levels. Performance appraisal, coaching, development planning, and performance problems will be discussed.

**Prerequisites:** HURM 3220 with a minimum grade of D-**Term Offered:** Spring**MGMT 4330 Leading Organizational Change and Development**

[3 credit hours]

This course introduces students to the practice of analyzing, planning, implementing and evaluating organizational change and development. Students will learn to apply the relevant individual, team and organizational change interventions which contribute to greater performance and effectiveness.

**Term Offered:** Spring**MGMT 4780 Leading and Managing People**

[3 credit hours]

The basic principles, practices and dynamics of effective leadership in organizations are presented in this course. Students will have opportunities to assess their current leadership skills and identify strategies to develop their leadership capabilities through self-assessments and case studies.

**Term Offered:** Spring, Fall**MGMT 4880 Sports Leadership**

[3 credit hours]

The intent of this course is to provide the opportunity for the student to gain information and a better understanding of the various practices associated with sports leadership and management. Through cases, experiential exercises, teamwork, discussion, and exams, students will develop the skills needed to be effective leaders in the sports industry.

**Term Offered:** Fall**MGMT 4900 Seminar On Contemporary Issues In Management**

[3 credit hours]

This seminar is designed to facilitate applications of managerial skills, tools and techniques in meeting contemporary challenges in organizations.

**Prerequisites:** BUAD 3030 with a minimum grade of D-**Term Offered:** Spring, Fall

**MGMT 4910 Research In Human Resource Management**

[1-3 credit hours]

Students have the opportunity to conduct an intensive investigation in a Human Resource Management area, supervised by a departmental faculty member. A formal paper is expected at the study's end.

**Prerequisites:** (HURM 3220 with a minimum grade of D- and BLAW 3550 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

**MGMT 4940 Management Internship**

[3 credit hours]

A supervised work experience for outstanding students. The internship involves practical experience. A written report is required of the student.

**Term Offered:** Spring, Summer, Fall

## BBA Entrepreneurship and Innovation

Entrepreneurship can be viewed as a personal passion for success, the desire to operate your own business, and spread your own wings. Innovation can happen in organizations at different stages of their organizational life cycles. Even old and traditional firms including state organizations or non-for-profit organizations can enjoy the benefits from innovation. Success in your own business or in implementing and managing innovation in an organization can be an exhilarating experience, but success does not just happen; it takes knowledge, preparation and skilled application.

The major in Entrepreneurship and Innovation educates and prepares students to succeed in their own business, or to help existing organizations with their innovation efforts. Several key disciplines are pursued within the major, including finance, management, communications, human resources, innovation management, ethics and critical thinking. Graduates of the entrepreneurship major will be prepared to begin implementing their own business idea, acquire a franchise, or work for an established company seeking creative people to develop and manage new products or innovation efforts.

Code	Title	Hours
<b>Required Courses</b>		
EFSB 3480	Entrepreneurial Finance	3
EFSB 4590	Entrepreneurship and Small Business Management	3
EFSB 4010	Growing Family And Entrepreneurial Businesses	3
EFSB 4690	Strategic Management of Innovation	3
BLAW 3570	The Laws Of Structuring And Operating A Business	3
PSLS 3440	Professional Sales	3
Select one of the following:		3
EFSB 4940	Internship In Entrepreneurship And Family Business	
A 3000/4000 level business elective		
<b>Total Hours</b>		<b>21</b>

Below is a sample plan of study. [Please see pre-business/lower division requirements BBA plan \(p. 514\) for terms one through four and additional information.](#) Consult your degree audit for your program requirements.

**Accrediting Body:** Association to Advance Collegiate Schools of Business (AACSB) International.

<b>First Term</b>		<b>Hours</b>
BUAD 1000	Orientation For Business Students	1
BUAD 1010	Introduction To Business	3
ENGL 1110	College Composition I	3
MATH 1320	College Algebra <sup>3</sup>	3
Arts/Humanities Core <sup>1</sup>		3
Social Science Core <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
<b>Second Term</b>		
BUAD 1020	Micro-Computer Applications In Business	3
ENGL 2960	Professional and Business Writing	3
ECON 1150	Principles Of Macroeconomics	3
Diversity of US <sup>1</sup>		3
Natural Sciences Core <sup>1</sup>		3
Natural Sciences Laboratory <sup>1</sup>		1
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
BUAD 2000	Career Development I	1
BUAD 2020	Information Technology Management	3
BUAD 2030	Executive Communication Essentials	3
BUAD 2040	Financial Accounting Information	3
BUAD 2060	Business Statistics	3
ECON 1200	Principles Of Microeconomics	3
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
BUAD 2050	Accounting For Business Decision-Making	3
BUAD 2070	Business Analytics	3
BUAD 2080	Global Environment Of Business	3
Arts/Humanities Core <sup>1</sup>		3
Natural Science Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
BUAD 3000	Career Development II	1
BUAD 3010	Principles Of Marketing	3
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
BUAD 3040	Principles Of Financial Management	3
BUAD 3470	The Legal And Ethical Environment Of Business	3
Non-US Diversity <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
<b>Sixth Term</b>		
BUAD 3020	Principles Of Manufacturing And Service Systems	3
BLAW 3570	The Laws Of Structuring And Operating A Business	3
EFSB 4590	Entrepreneurship and Small Business Management	3

Minor/Business Elective <sup>2</sup>		3
Minor/Business Elective <sup>2</sup>		3
<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
EFSB 3480	Entrepreneurial Finance	3
EFSB 4690	Strategic Management of Innovation	3
EFSB 4940	Internship In Entrepreneurship And Family Business	3
BUAD 4020	Senior Business Policy Forum	3
Elective		2
<b>Hours</b>		<b>14</b>
<b>Eighth Term</b>		
EFSB 4010	Growing Family And Entrepreneurial Businesses	3
PSLS 3440	Professional Sales	3
Minor/Business Elective <sup>2</sup>		3
Elective		3
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Select from approved University course work, see degree audit for course selection.  
<sup>2</sup> Minor elective or 3000/4000 Business elective if no Business minor is selected.  
<sup>3</sup> Acceptable replacements include MATH 1260 or 1270 or 1340 or 1730 or 1750 or 1760 or 1850 or 1860 or 2450 or 2460

- PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community
- PLO 2: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.
- PLO 3: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound inferences from and use effective problem-solving and decision-making techniques.
- PLO 4: Business Acumen – Each Student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business
- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity
- PLO 6: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior
- PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies

## BBA Human Resource Management

Human resource managers are needed in every size and type of organization. They help attract, develop and retain the people who make

the organization successful. Human resource managers also work with team-building, problem-solving and interpersonal communication talents.

UToledo’s human resource management program teaches students about a wide variety of HR issues – selection, training, recruitment, compensation, benefits, legal issues, employee relations and safety. Human resource management is designed to prepare candidates to assume positions as human resource practitioners in domestic and international business organizations, hospitals, nonprofit organizations, and local, state and federal government agencies.

Code	Title	Hours
<b>Required Courses</b>		
BLAW 3550	Legal And Safety Compliance Issues In Human Resource Management	3
HURM 3220	Human Resource Management	3
HURM 4640	Benefits, Health & Wellness	3
HURM 4650	Compensation	3
HURM 4660	Planning, Selection, and Recruitment	3
HURM 4710	Human Capital Performance and Development	3
MGMT 3630	Conflict Management: Mediation & Negotiations	3
<b>Total Hours</b>		<b>21</b>

### Combined bachelor's to master's – BBA-MABA

Undergraduate students accepted to the BBA-MABA pipeline program option will be admitted to the Master of Applied Business Analytics (MABA) program and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) one or two courses from the following MABA core courses (INFS 6150, OSCM 6250 or OSCM 6350) and one of the following courses based on the student chosen functional area (BUAD 6100, BUAD 6200, BUAD 6300, BUAD 6600, BUAD 6800 or INFS 6050) may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

Below is a sample plan of study. [Please see pre-business/lower division requirements BBA plan \(p. 514\) for terms one through four and additional information.](#) Consult your degree audit for your program requirements.



**Accrediting Body: Association to Advance Collegiate Schools of Business (AACSB) International.**

<b>First Term</b>		<b>Hours</b>
BUAD 1000	Orientation For Business Students	1
BUAD 1010	Introduction To Business	3
ENGL 1110	College Composition I	3
MATH 1320	College Algebra <sup>3</sup>	3
Arts/Humanities Core <sup>1</sup>		3
Social Science Core <sup>1</sup>		3
<b>Hours</b>		<b>16</b>

<b>Second Term</b>		<b>Hours</b>
BUAD 1020	Micro-Computer Applications In Business	3
ENGL 2960	Professional and Business Writing	3
ECON 1150	Principles Of Macroeconomics	3
Diversity of US <sup>1</sup>		3
Natural Sciences Core <sup>1</sup>		3
Natural Sciences Laboratory <sup>1</sup>		1
<b>Hours</b>		<b>16</b>

<b>Third Term</b>		<b>Hours</b>
BUAD 2000	Career Development I	1
BUAD 2020	Information Technology Management	3
BUAD 2030	Executive Communication Essentials	3
BUAD 2040	Financial Accounting Information	3
BUAD 2060	Business Statistics	3
ECON 1200	Principles Of Microeconomics	3
<b>Hours</b>		<b>16</b>

<b>Fourth Term</b>		<b>Hours</b>
BUAD 2050	Accounting For Business Decision-Making	3
BUAD 2070	Business Analytics	3
BUAD 2080	Global Environment Of Business	3
Natural Science Core <sup>1</sup>		3
Arts/Humanities Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>

<b>Fifth Term</b>		<b>Hours</b>
BUAD 3000	Career Development II	1
BUAD 3010	Principles Of Marketing	3
BUAD 3470	The Legal And Ethical Environment Of Business	3
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
BUAD 3040	Principles Of Financial Management	3
Non-US Diversity <sup>1</sup>		3
<b>Hours</b>		<b>16</b>

<b>Sixth Term</b>		<b>Hours</b>
BLAW 3550	Legal And Safety Compliance Issues In Human Resource Management	3
BUAD 3020	Principles Of Manufacturing And Service Systems	3
HURM 3220	Human Resource Management	3

Minor/Business Elective <sup>2</sup>	3
Minor/Business Elective <sup>2</sup>	3

<b>Hours</b>		<b>15</b>
<b>Seventh Term</b>		
HURM 4640	Benefits, Health & Wellness	3
HURM 4660	Planning, Selection, and Recruitment	3
HURM 4710	Human Capital Performance and Development	3
BUAD 4020	Senior Business Policy Forum	3
Elective		2

<b>Hours</b>		<b>14</b>
<b>Eighth Term</b>		
HURM 4650	Compensation	3
MGMT 3630	Conflict Management: Mediation & Negotiations	3
Minor/Business Elective <sup>2</sup>		3
Elective		3
<b>Hours</b>		<b>12</b>

<b>Total Hours</b>		<b>120</b>
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<sup>1</sup> Select from approved University core course work, see degree audit for course selection.

<sup>2</sup> Minor elective or 3000/4000 level Business elective if no Business minor is selected.

<sup>3</sup> Acceptable replacements include MATH 1260 or 1270 or 1340 or 1730 or 1750 or 1760 or 1850 or 1860 or 2450 or 2460

- PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community.
- PLO 2: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.
- PLO 3: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound inferences from and use effective problem-solving and decision-making techniques.
- PLO 4: Business Acumen – Each Student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business.
- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity.
- PLO 6: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior.
- PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies.

## BBA Management

This area is designed to be more of a General Business option for students possibly interested in completing their degree or wishing

to focus in a variety of Business courses in addition to a general management focus. Students seeking the complete array of course work in an intense Management curriculum should select the Organizational Leadership and Management (p. 545) area of specialization/major.

Code	Title	Hours
<b>Required Departmental Courses</b>		
Select four of the following: <sup>1</sup>		12
BLAW 3550	Legal And Safety Compliance Issues In Human Resource Management	
BLAW 3570	The Laws Of Structuring And Operating A Business	
BLAW 3670		
BLAW 4570	Legal And Ethical Aspects Of Managing Innovation And Technology	
BLAW 4580	Detection And Prevention Of Deceptive Business Practices	
EFSB 4010	Growing Family And Entrepreneurial Businesses	
EFSB 3480	Entrepreneurial Finance	
EFSB 4590	Entrepreneurship and Small Business Management	
EFSB 4690	Strategic Management of Innovation	
EFSB 4940	Internship In Entrepreneurship And Family Business <sup>2</sup>	
HURM 3220	Human Resource Management	
HURM 4640	Benefits, Health & Wellness	
HURM 4650	Compensation	
HURM 4660	Planning, Selection, and Recruitment	
HURM 4710	Human Capital Performance and Development	
MGMT 3700	Best Practices in Diversity Leadership	
MGMT 3770	Ethics In Leadership And Management	
MGMT 3630	Conflict Management: Mediation & Negotiations	
MGMT 3910	Research In Management <sup>2</sup>	
MGMT 4880	Sports Leadership	
MGMT 4330	Leading Organizational Change and Development	
MGMT 4780	Leading and Managing People	
MGMT 4900	Seminar On Contemporary Issues In Management	
MGMT 4940	Management Internship <sup>2</sup>	
<b>Electives</b>		
Select three Business elective courses <sup>3</sup>		9
<b>Total Hours</b>		<b>21</b>

<sup>1</sup> Select four courses with a maximum two courses from each alpha code.

<sup>2</sup> With departmental approval.

<sup>3</sup> Select three additional courses from any 3000/4000 Business level course not used in a minor from:

- ACCT
- EBUS
- FINA
- IBUS
- INFS
- MKTG

- OSCM
- PSLS

**Early admission/bridge program – BBA-MBA**

Undergraduate students accepted in the BBA-MBA option will be admitted to the MBA program and allowed to complete up to three **graduate level classes** (nine credit hours) during their final academic year of **undergraduate studies**. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in the MBA program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied **to completion of both undergraduate and MBA degree requirements**. The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the MBA joint program, 2) only BUAD 6100, BUAD 6300, BUAD 6400, BUAD 6500, BUAD 6800 may be included in the approved nine semester hours of graduate credit taken as an undergraduate. 3) Up to 9 credit hours of graduate business courses can be used toward the 3000/4000-level business electives or extra hours toward their BBA.

However, they may not count any of those 9 credit hours toward any specific undergraduate major or minor requirements, nor may they count toward any required undergraduate business core requirements (i.e., no BUAD-designated courses). Students must have at the time of application 1) a minimum of 3.0 cumulative undergraduate grade point average that will include undergraduate credits earned at other institutions and transferred to UT, 2) undergraduate advisor’s approval, and 3) graduate advisor’s approval. Students interested in the joint BBA / MBA program must submit 1) a letter of interest, 2) a completed graduate admission application, 3) at least 2 letter(s) of recommendation from faculty members. After successful completion of the application process, students will apply to the graduate program.

**Combined bachelor’s to master’s – BBA-MABA**

Undergraduate students accepted to the BBA-MABA pipeline program option will be admitted to the Master of Applied Business Analytics (MABA) program and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) one or two courses from the following MABA core courses (INFS 6150, OSCM 6250 or OSCM 6350) and one of the following courses based on the student chosen functional area



(BUAD 6100, BUAD 6200, BUAD 6300, BUAD 6600, BUAD 6800 or INFS 6050) may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

## Bachelor of Business Administration in Management

Below is a sample plan of study. [Please see pre-business/lower division requirements BBA plan \(p. 514\) for terms one through four and additional information.](#) Consult your degree audit for your program requirements.

**Accrediting Body: Association to Advance Collegiate Schools of Business (AACSB) International.**

First Term		Hours
BUAD 1000	Orientation For Business Students	1
BUAD 1010	Introduction To Business	3
ENGL 1110	College Composition I	3
MATH 1320	College Algebra <sup>5</sup>	3
Arts/Humanities Core <sup>1</sup>		3
Social Science Core <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
Second Term		Hours
BUAD 1020	Micro-Computer Applications In Business	3
ENGL 2960	Professional and Business Writing	3
ECON 1150	Principles Of Macroeconomics	3
Diversity of US <sup>1</sup>		3
Natural Sciences Core <sup>1</sup>		3
Natural Sciences Laboratory <sup>1</sup>		1
<b>Hours</b>		<b>16</b>
Third Term		Hours
BUAD 2000	Career Development I	1
BUAD 2020	Information Technology Management	3
BUAD 2030	Executive Communication Essentials	3
BUAD 2040	Financial Accounting Information	3
BUAD 2060	Business Statistics	3
ECON 1200	Principles Of Microeconomics	3
<b>Hours</b>		<b>16</b>
Fourth Term		Hours
BUAD 2050	Accounting For Business Decision-Making	3
BUAD 2070	Business Analytics	3
BUAD 2080	Global Environment Of Business	3
Arts/Humanities Core <sup>1</sup>		3
Natural Science Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>
Fifth Term		Hours
BUAD 3000	Career Development II	1
BUAD 3010	Principles Of Marketing	3

BUAD 3030	Managerial And Behavioral Processes In Organizations	3
BUAD 3040	Principles Of Financial Management	3
BUAD 3470	The Legal And Ethical Environment Of Business	3
Non-US Diversity <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
Sixth Term		Hours
BUAD 3020	Principles Of Manufacturing And Service Systems	3
Minor/Business Elective <sup>2</sup>		3
MGMT Major Elective <sup>3</sup>		3
MGMT Major Elective <sup>3</sup>		3
MGMT Major Elective - General Business <sup>4</sup>		3
<b>Hours</b>		<b>15</b>
Seventh Term		Hours
BUAD 4020	Senior Business Policy Forum	3
MGMT Major Elective <sup>3</sup>		3
MGMT Major Elective - General Business <sup>4</sup>		3
Minor/Business Elective <sup>2</sup>		3
Elective		2
<b>Hours</b>		<b>14</b>
Eighth Term		Hours
MGMT Major Elective <sup>3</sup>		3
MGMT Major Elective - General Business <sup>4</sup>		3
Minor/Business Elective <sup>2</sup>		3
Elective		3
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Select from approved University core course work, see degree audit for course selection.

<sup>2</sup> Minor elective or 3000/4000 level Business elective if no Business minor is selected.

<sup>3</sup> Management major elective, including internship, see degree audit for course selection.

<sup>4</sup> Management major elective outside of the Management Department, see degree audit for course selection.

<sup>5</sup> Acceptable replacements include MATH 1260 or 1270 or 1340 or 1730 or 1750 or 1760 or 1850 or 1860 or 2450 or 2460

- PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community.
- PLO 2: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.
- PLO 3: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound inferences from and use effective problem-solving and decision-making techniques.



- PLO 4: Business Acumen – Each Student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business.
- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity.
- PLO 6: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior.
- PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies.

## BBA Organizational Leadership and Management

Undergraduate students in the Organizational Leadership and Management major are provided with the necessary foundation in a number of areas that are crucial to a managers’ success such as learning to make ethical decisions, motivate and inspire employees to work towards a common goal, plan for the future and focus on organizational goals, evaluate and counsel individual and group performance, effectively manage and build successful teams, resolve conflicts, improve oral and written communication and, in general, make the people around them more successful. A leadership career involves taking your organization into a better direction, or to surpass previous limits of a team or unit by using the critical tools taught in the major.

Code	Title	Hours
HURM 3220	Human Resource Management	3
MGMT 3630	Conflict Management: Mediation & Negotiations	3
MGMT 3770	Ethics In Leadership And Management	3
MGMT 3700	Best Practices in Diversity Leadership	3
MGMT 4330	Leading Organizational Change and Development	3
HURM 4710	Human Capital Performance and Development	3
MGMT 4780	Leading and Managing People	3
<b>Total Hours</b>		<b>21</b>

### Early admission/bridge program – BBA-MBA

Undergraduate students accepted in the BBA-MBA option will be admitted to the MBA program and allowed to complete up to three **graduate level classes** (nine credit hours) during their final academic year of **undergraduate studies**. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in the MBA program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied **to completion of both undergraduate and MBA degree requirements**. The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the MBA joint program, 2) only BUAD 6100, BUAD 6300, BUAD 6400, BUAD 6500, BUAD 6800 may be included in the approved nine semester hours of graduate credit taken as an undergraduate. 3) Up to 9 credit hours of graduate business courses can be used toward the 3000/4000-level business electives or extra hours toward their BBA.

However, they may not count any of those 9 credit hours toward any specific undergraduate major or minor requirements, nor may they count toward any required undergraduate business core requirements (i.e., no BUAD-designated courses). Students must have at the time of application 1) a minimum of 3.0 cumulative undergraduate grade point average that will include undergraduate credits earned at other institutions and transferred to UT, 2) undergraduate advisor’s approval, and 3) graduate advisor’s approval. Students interested in the joint BBA / MBA program must submit 1) a letter of interest, 2) a completed graduate admission application, 3) at least 2 letter(s) of recommendation from faculty members. After successful completion of the application process, students will apply to the graduate program.

### Combined bachelor’s to master’s – BBA-MABA

Undergraduate students accepted to the BBA-MABA pipeline program option will be admitted to the Master of Applied Business Analytics (MABA) program and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) one or two courses from the following MABA core courses (INFS 6150, OSMC 6250 or OSMC 6350) and one of the following courses based on the student chosen functional area (BUAD 6100, BUAD 6200, BUAD 6300, BUAD 6600, BUAD 6800 or INFS 6050) may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

Below is a sample plan of study. [Please see pre-business/lower division requirements BBA plan \(p. 514\) for terms one through four and additional information.](#) Consult your degree audit for your program requirements.

### Accrediting Body: Association to Advance Collegiate Schools of Business (AACSB) International.

First Term		Hours
BUAD 1000	Orientation For Business Students	1
BUAD 1010	Introduction To Business	3
ENGL 1110	College Composition I	3
MATH 1320	College Algebra <sup>3</sup>	3
Arts/Humanities Core <sup>1</sup>		3
Social Science Core <sup>1</sup>		3
<b>Hours</b>		<b>16</b>



**Second Term**

BUAD 1020	Micro-Computer Applications In Business	3
ENGL 2960	Professional and Business Writing	3
ECON 1150	Principles Of Macroeconomics	3
Diversity of US <sup>1</sup>		3
Natural Sciences Core <sup>1</sup>		3
Natural Science Laboratory <sup>1</sup>		1
<b>Hours</b>		<b>16</b>

**Third Term**

BUAD 2000	Career Development I	1
BUAD 2020	Information Technology Management	3
BUAD 2030	Executive Communication Essentials	3
BUAD 2040	Financial Accounting Information	3
BUAD 2060	Business Statistics	3
ECON 1200	Principles Of Microeconomics	3
<b>Hours</b>		<b>16</b>

**Fourth Term**

BUAD 2050	Accounting For Business Decision-Making	3
BUAD 2070	Business Analytics	3
BUAD 2080	Global Environment Of Business	3
Arts/Humanities Core <sup>1</sup>		3
Natural Science Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>

**Fifth Term**

BUAD 3000	Career Development II	1
BUAD 3010	Principles Of Marketing	3
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
BUAD 3040	Principles Of Financial Management	3
BUAD 3470	The Legal And Ethical Environment Of Business	3
Non-US Diversity <sup>1</sup>		3
<b>Hours</b>		<b>16</b>

**Sixth Term**

BUAD 3020	Principles Of Manufacturing And Service Systems	3
HURM 3220	Human Resource Management	3
MGMT 3630	Conflict Management: Mediation & Negotiations	3
Minor/Business Elective <sup>2</sup>		3
Minor/Business Elective <sup>2</sup>		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

MGMT 3770	Ethics In Leadership And Management	3
MGMT 3700	Best Practices in Diversity Leadership	3
MGMT 4780	Leading and Managing People	3
BUAD 4020	Senior Business Policy Forum	3
Elective		2
<b>Hours</b>		<b>14</b>

**Eighth Term**

HURM 4710	Human Capital Performance and Development	3
MGMT 4330	Leading Organizational Change and Development	3
Minor/Business Elective <sup>2</sup>		3
Elective		3
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Select from approved University core course work, see degree audit for course selection.

<sup>2</sup> Minor elective or 3000/4000 level Business elective if no Business minor is selected.

<sup>3</sup> Acceptable replacements include MATH 1260 or 1270 or 1340 or 1730 or 1750 or 1760 or 1850 or 1860 or 2450 or 2460

- PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community.
- PLO 2: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.
- PLO 3: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound inferences from and use effective problem-solving and decision-making techniques.
- PLO 4: Business Acumen – Each Student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business.
- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity.
- PLO 6: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior.
- PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies.

## Department of Marketing

Interim Chair, Dr. Laurence Fink

The Department of Marketing offers two unique and exciting programs. Join the more than 800 students to find out why Marketing and Professional Sales are their programs of choice...attractive jobs, valuable internships, industry and global networking, travel and study abroad, research-productive and student-centered faculty, and three very active student organizations are some of the compelling reasons!

## Degrees Offered

- BBA Marketing (p. 549)
- BBA Professional Sales (p. 551)
- Consultative Sales, Post Baccalaureate Certificate (p. 553)

### EBUS 3090 Doing Business Digitally

[3 credit hours]

This course is an introduction to the networked economy, e-commerce and business transformation. It covers the technological trends, business opportunities, competitive threats, marketing responses and public policy issues concerning e-commerce.

**Term Offered:** Spring, Summer, Fall

### EBUS 3180 Web Design and Data Analytics

[3 credit hours]

A study of Web site design and management process for effective business communication, including authoring software, graphic tools, scripting techniques, java applets and related technical, legal ethical and managerial issues.

**Term Offered:** Fall

### EBUS 4040 Digital Business Intelligence

[3 credit hours]

A study of business intelligence management in an e-commerce environment, including the use of data mining and inbound marketing analytics tools for market analysis and business decision supports.

**Prerequisites:** EBUS 3090 with a minimum grade of D-

**Term Offered:** Spring, Fall

### EBUS 4150 Social Media Marketing

[3 credit hours]

A hands-on course involving case studies of successful e-commerce business models and a team-based project to develop e-commerce plan for established and start-up businesses.

**Prerequisites:** EBUS 3090 with a minimum grade of D-

**Term Offered:** Spring

### EBUS 4940 Internship

[3 credit hours]

Course description: Gain practical, hands –on professional experience while working in an organization.

### IBUS 3150 Understanding Cultural Differences For Business

[3 credit hours]

Course focuses on understanding cultures and managing cultural differences for competitive advantage in global business.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

### IBUS 3600 International Management

[3 credit hours]

An overview of management in different geographic regions of the world. Case studies will be used to compare and contrast national models of management.

**Prerequisites:** BUAD 3030 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### IBUS 4100 Study Abroad Program

[3 credit hours]

Program includes travel abroad, study and written report of an industry, company, or issues of interest, cultural immersion, and visits to manufacturing, service and government organizations.

**Term Offered:** Spring, Summer, Fall

### IBUS 4360 Global Business

[3 credit hours]

Students will learn to integrate international business functions, develop strategies that respond to environmental changes, and understand the challenges faced by small, mid-sized and multinational firms operating in a global environment.

**Term Offered:** Spring, Fall

### IBUS 4940 Internship In International Business II

[3 credit hours]

A course in which the student receives practical International Business experience working in a global organization either within the U.S. or overseas.

**Term Offered:** Spring, Summer, Fall

### MKTG 3130 Supply Chain Management

[3 credit hours]

This course presents an integrated approach to value chain management and analyzes key challenges, practices and trends concerning primary business functions and processes. The course also examines the strategic ramifications for the supply chain in an emerging digital economy.

**Prerequisites:** BUAD 2080 with a minimum grade of D- or BMGT 2110 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### MKTG 3140 International Marketing

[3 credit hours]

Course focuses on developing an international marketing plan. Foreign country target market selection and development of a plan of action are explored in hands-on learning experience.

**Prerequisites:** BUAD 3010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### MKTG 3280 Digital Marketing

[3 credit hours]

A study of digital marketing management, including market opportunity and environmental assessment, Web presence and value propositions, and special issues concerning marketing mix design and implementation. Students will gain a basic understanding of digital marketing concepts – including an introduction to digital marketing metrics and online advertising– in order to develop a strategic digital marketing plan.

**Prerequisites:** BUAD 3010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### MKTG 3380 Digital Content Development

[3 credit hours]

An exploration of inbound, branded content strategies across digital marketing channels. Students will explore written and visual content development to enhance the overall customer experience. This is an applied course where students will be introduced to frameworks and best practices on content creation and planning in order to optimize effective content for a brand's target market.

**Prerequisites:** MKTG 3280 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MKTG 3480 Digital Marketing Tools and Analytics**

[3 credit hours]

This is a hands-on course examining the strategic use of the Internet and other digital technologies in order to improve an organization's marketing efforts. Students will explore online marketing strategies, navigate social media marketing, and utilize marketing analytic tools, resulting in an industry-recognized, digital marketing certification.

**Prerequisites:** MKTG 3280 with a minimum grade of D-**Term Offered:** Spring, Fall**MKTG 3690 Marketing Communications**

[3 credit hours]

This course focuses on communication tools in marketing, including advertising, sales promotion, direct marketing, publicity, and more. Students will analyze the objectives of these communication tools, evaluate the effectiveness of each, and develop an integrated marketing communications strategy. Course includes a focus on managerial decision making, as well as legal and ethical aspects of promotion.

**Prerequisites:** BUAD 3010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MKTG 3850 Buyer Behavior And Relationship Marketing**

[3 credit hours]

Utilization of the behavioral sciences for the analysis of both consumer and business markets. Designing marketing programs to build strong seller-buyer relationships.

**Prerequisites:** BUAD 3010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MKTG 3880 Marketing Research And Data Analytics**

[3 credit hours]

This course addresses the fundamentals of marketing information systems, marketing research, and data analytics utilized in understanding the marketing function. Emphasis is on searching, developing, and providing information for marketing decision-making using both traditional marketing research tools, data mining, and inbound marketing analytics.

**Prerequisites:** BUAD 2070 with a minimum grade of D- and BUAD 3010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MKTG 3920 Sports Marketing**

[3 credit hours]

This course examines the world of sports as a business and will focus on attracting the ultimate customer-sports fans in an increasingly competitive, fragmented and global service. The course will discuss the management of sports at the professional, collegiate and special event levels focusing on the role marketing plays in planning and decision-making in attracting fans and other major customer—sponsors.

**Prerequisites:** BUAD 3010 with a minimum grade of D-**MKTG 4130 Marketing Analysis And Decision Making**

[3 credit hours]

This capstone course integrates marketing functional and strategic knowledge learned throughout the major in order to sharpen students' integrative marketing decision-making abilities. The course utilizes case analysis, simulation, and/or project-based analysis.

**Prerequisites:** (MKTG 3880 with a minimum grade of D- and MKTG 3850 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall**MKTG 4220 International Sourcing, Logistics And Transportation**

[3 credit hours]

This course provides extensive insight of foreign trade practices and decision-making criteria attendant to international sourcing, logistics and transportation management.

**Prerequisites:** BUAD 2080 with a minimum grade of D- or BMGT 2110 with a minimum grade of D-**Term Offered:** Spring, Fall**MKTG 4540 Business Marketing**

[3 credit hours]

Analysis of business markets and development of programs to market industrial business-to-business products/services.

**Prerequisites:** BUAD 3010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MKTG 4940 Marketing Internship**

[1-3 credit hours]

Receive practical business experience working in an organization.

**Term Offered:** Spring, Summer, Fall**MKTG 4980 Special Topics**

[3 credit hours]

Analysis of current issues in Marketing, International Business, or Sales.

**Prerequisites:** BUAD 3010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MKTG 4990 Independent Study**

[1-3 credit hours]

Independent study in marketing, international business, or business economics. Student must submit a proposal to be approved by a department faculty member prior to enrolling in the course.

**Term Offered:** Spring, Summer, Fall**PSLS 3000 Sales Career Orientation And Management**

[1 credit hour]

This course addresses careers in sales, looking at different types of selling and sales activities.

**Term Offered:** Spring, Fall**PSLS 3080 Purchasing And Business Relationship Management**

[3 credit hours]

Purchasing and Business Relationship Management is designed for students interested in a career in sales, purchasing or general marketing. You will be exposed to the industrial buyer behavior and buying processes, strategic purchasing, relationship management and supply chain management. You will develop skills in communication, planning, analytical thinking and negotiation.

**Term Offered:** Spring, Summer, Fall**PSLS 3440 Professional Sales**

[3 credit hours]

This course introduces the professional selling process from a customer collaboration perspective. The course utilizes role plays and exercises to develop a strong but adaptable sales process that will serve a student well in a business or complex selling situation.

**Term Offered:** Spring, Summer, Fall

**PSLS 3450 Sales Technologies and Strategies**

[3 credit hours]

This course introduces the student to the activities involved in supporting buyer-seller interactions and the personal selling function using the principles of Customer Relationship Management (CRM). Its purpose is to provide skills in areas related to prospecting, sales force automation technology, time and territory management, and managing customer follow-up.

**Term Offered:** Spring, Summer, Fall

**PSLS 4500 International Sales Negotiation**

[3 credit hours]

This course is designed to explore the cultural and business implications of a sales career within an international or cross-cultural setting.

Students will work in an applied setting engaging in role-playing and company analysis to understand the unique characteristics of this context. Prerequisite: Junior standing

**PSLS 4710 Salesforce Leadership**

[3 credit hours]

The role and functions of the first line sales manager will be examined, including sales force size and organization, and management of the sales force. Issues related to hiring, training, supervising, compensating and evaluating salespersons are also emphasized.

**Prerequisites:** PSLs 3440 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**PSLS 4740 Advanced Sales**

[3 credit hours]

This course provides in depth study of advanced selling concepts including relationship management, account management, strategic selling, team selling and selected current topics. The course includes business presentations, field work, role playing and case studies.

**Prerequisites:** PSLs 3440 with a minimum grade of D-

**Term Offered:** Spring, Fall

**PSLS 4940 Integrative Capstone: Sales Internship**

[3 credit hours]

Receive practical sales experiences working in a business environment.

**Prerequisites:** PSLs 3440 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

## BBA Marketing

The marketing specialization provides the student with the skills to make decisions about product design and quality, pricing, channels of distribution, advertising and personal selling in ways that enhance consumer satisfaction and further the goals of the organization. The student learns to approach problems with a clear understanding of the relationship between marketing and other business functions.

Code	Title	Hours
<b>Required Courses</b>		
MKTG 3280	Digital Marketing	3
MKTG 3690	Marketing Communications	3
MKTG 3850	Buyer Behavior And Relationship Marketing	3
MKTG 3880	Marketing Research And Data Analytics	3
MKTG 4130	Marketing Analysis And Decision Making	3
<b>Electives</b>		
Select two courses (6 hours) from the following list:		6

MKTG 3130	Supply Chain Management
MKTG 3140	International Marketing
MKTG 3380	Digital Content Development
MKTG 3480	Digital Marketing Tools and Analytics
MKTG 3920	Sports Marketing
MKTG 4220	International Sourcing, Logistics And Transportation
MKTG 4540	Business Marketing
MKTG 4940	Marketing Internship
MKTG 4980	Special Topics
MKTG 4990	Independent Study
PSLS 3080	Purchasing And Business Relationship Management
PSLS 3440	Professional Sales
PSLS 3450	Sales Technologies and Strategies
PSLS 4710	Salesforce Leadership

**Total Hours** **21**

Undergraduate students accepted in the BBA-MBA option will be admitted to the MBA program and allowed to complete up to three **graduate level classes** (nine credit hours) during their final academic year of **undergraduate studies**. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in the MBA program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied **to completion of both undergraduate and MBA degree requirements**. The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the MBA joint program, 2) only BUAD 6100, BUAD 6300, BUAD 6400, BUAD 6500, BUAD 6800 may be included in the approved nine semester hours of graduate credit taken as an undergraduate. 3) Up to 9 credit hours of graduate business courses can be used toward the 3000/4000-level business electives or extra hours toward their BBA.

However, they may not count any of those 9 credit hours toward any specific undergraduate major or minor requirements, nor may they count toward any required undergraduate business core requirements (i.e., no BUAD-designated courses). Students must have at the time of application 1) a minimum of 3.0 cumulative undergraduate grade point average that will include undergraduate credits earned at other institutions and transferred to UT, 2) undergraduate advisor's approval, and 3) graduate advisor's approval. Students interested in the joint BBA / MBA program must submit 1) a letter of interest, 2) a completed graduate admission application, 3) at least 2 letter(s) of recommendation from faculty members. After successful completion of the application process, students will apply to the graduate program.

**Combined bachelor's to master's -- BBA-MABA**

Undergraduate students accepted to the BBA-MABA pipeline program option will be admitted to the Master of Applied Business Analytics (MABA) program and allowed to complete up to three graduate level classes (nine credit hours) during their final academic year of undergraduate studies. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue into the graduate



program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied to completion of both undergraduate and graduate degree requirements. It will be the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the program, 2) one or two courses from the following MABA core courses (INFS 6150, OSCM 6250 or OSCM 6350) and one of the following courses based on the student chosen functional area (BUAD 6100, BUAD 6200, BUAD 6300, BUAD 6600, BUAD 6800 or INFS 6050) may be included in the approved nine semester hours of graduate credit taken as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

Below is a sample plan of study. [Please see pre-business/lower division requirements BBA plan \(p. 514\) for terms one through four and additional information.](#) Consult your degree audit for your program requirements.

**Accrediting Body: Association to Advance Collegiate Schools of Business (AACSB) International.**

First Term	Hours
BUAD 1000 Orientation For Business Students	1
BUAD 1010 Introduction To Business	3
ENGL 1110 College Composition I	3
MATH 1320 College Algebra <sup>4</sup>	3
Arts/Humanities Core <sup>1</sup>	3
Social Science Core <sup>1</sup>	3
<b>Hours</b>	<b>16</b>
Second Term	Hours
BUAD 1020 Micro-Computer Applications In Business	3
ENGL 2960 Professional and Business Writing	3
ECON 1150 Principles Of Macroeconomics	3
Diversity of US	3
Natural Sciences Core <sup>1</sup>	3
Natural Sciences Laboratory <sup>1</sup>	1
<b>Hours</b>	<b>16</b>
Third Term	Hours
BUAD 2000 Career Development I	1
BUAD 2020 Information Technology Management	3
BUAD 2030 Executive Communication Essentials	3
BUAD 2040 Financial Accounting Information	3
BUAD 2060 Business Statistics	3
ECON 1200 Principles Of Microeconomics	3
<b>Hours</b>	<b>16</b>
Fourth Term	Hours
BUAD 2050 Accounting For Business Decision-Making	3

BUAD 2070 Business Analytics	3
BUAD 2080 Global Environment Of Business	3
Arts/Humanities Core <sup>1</sup>	3
Natural Science Core <sup>1</sup>	3

**Hours 15**

#### Fifth Term

BUAD 3000 Career Development II	1
BUAD 3020 Principles Of Manufacturing And Service Systems	3
BUAD 3010 Principles Of Marketing	3
BUAD 3030 Managerial And Behavioral Processes In Organizations	3
BUAD 3040 Principles Of Financial Management	3
Non-US Diversity <sup>1</sup>	3

**Hours 16**

#### Sixth Term

BUAD 3470 The Legal And Ethical Environment Of Business	3
MKTG 3850 Buyer Behavior And Relationship Marketing	3
MKTG 3880 Marketing Research And Data Analytics	3
MKTG 3690 Marketing Communication <sup>3</sup>	3
Minor/Business Elective <sup>2</sup>	3

**Hours 15**

#### Seventh Term

BUAD 4020 Senior Business Policy Forum	3
MKTG 3280 Digital Marketing <sup>3</sup>	3
MKTG Major Elective <sup>3</sup>	3
Minor/Business Elective <sup>2</sup>	3
Elective	2

**Hours 14**

#### Eighth Term

MKTG 4130 Marketing Analysis And Decision Making	3
MKTG Major Elective <sup>3</sup>	3
Minor/Business Elective <sup>2</sup>	3
Elective	3

**Hours 12**

**Total Hours 120**

<sup>1</sup> Select from approved University core course work, see degree audit for course selection.

<sup>2</sup> Minor elective or 3000/4000 level Business elective if no Business minor is selected.

<sup>3</sup> Marketing major elective including internship, see degree audit for course selection.

<sup>4</sup> Acceptable replacements include MATH 1260 or 1270 or 1340 or 1730 or 1750 or 1760 or 1850 or 1860 or 2450 or 2460

- PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community.

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- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity.
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- PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies.

MKTG 4540	Business Marketing <sup>1</sup>	3
or PSLs 4500	International Sales Negotiation	
PSLS 4940	Integrative Capstone: Sales Internship	3

**Recommended Courses towards General Education/University Core Requirements**

COMM 1010	Comm Principles And Practices
PHIL 1020	Critical Thinking
PSY 1010	Principles Of Psychology
SOC 1010	Introduction To Sociology

**Total Hours** **21**

<sup>1</sup> Select one from these two courses. Dual majors may also be able to utilize another course from their other major.

**Early admission/bridge program – BBA-MBA**

Undergraduate students accepted in the BBA-MBA option will be admitted to the MBA program and allowed to complete up to three **graduate level classes** (nine credit hours) during their final academic year of **undergraduate studies**. Students admitted into the pipeline program must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate. They will then continue in the MBA program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) may be applied **to completion of both undergraduate and MBA degree requirements**. The following provisions apply for classes taken for graduate credit: 1) graduate classes taken at The University of Toledo only after the student is accepted in the MBA joint program, 2) only BUAD 6100, BUAD 6300, BUAD 6400, BUAD 6500, BUAD 6800 may be included in the approved nine semester hours of graduate credit taken as an undergraduate. 3) Up to 9 credit hours of graduate business courses can be used toward the 3000/4000-level business electives or extra hours toward their BBA.

However, they may not count any of those 9 credit hours toward any specific undergraduate major or minor requirements, nor may they count toward any required undergraduate business core requirements (i.e., no BUAD-designated courses). Students must have at the time of application 1) a minimum of 3.0 cumulative undergraduate grade point average that will include undergraduate credits earned at other institutions and transferred to UT, 2) undergraduate advisor’s approval, and 3) graduate advisor’s approval. Students interested in the joint BBA / MBA program must submit 1) a letter of interest, 2) a completed graduate admission application, 3) at least 2 letter(s) of recommendation from faculty members. After successful completion of the application process, students will apply to the graduate program.

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## BBA Professional Sales

*Ellen Pullins, departmental mentor*

Selling is an important life and professional skill, and students in the professional sales area specialization are prepared for how to help people and organizations in a business-to-business environment reach their goals. Collaborative and consultative selling is about teaching customers how to buy, helping them understand opportunities, diagnosing problems, and tailoring solutions. The sales force is the direct link between the firm and its customers, with sales professionals as part of a team to manage relationships across both organizations and sometimes across functional areas. Professional sales is offered as a major, minor (business and non-business students), and concentration, and select classes can be taken as an elective.

Students in the world-renowned Edward H. Schmidt School of Professional Sales (ESSPS) enjoy:

- A 96% placement rate with good fit organizations
- Regular engagement with corporate partners as coaches, workshop facilitators, competition judges and buyers, etc
- Hands-on and best practice curricula with role plays and simulations delivered by caring faculty with industry experience and extensive research publications
- Internship opportunities that build competence, confidence, and networks
- Active student organizations like Pi Sigma Epsilon (PSE)

Code	Title	Hours
<b>Required Professional Sales Courses</b>		
PSLS 3080	Purchasing And Business Relationship Management	3
PSLS 3440	Professional Sales	3
PSLS 3450	Sales Technologies and Strategies	3
PSLS 4710	Salesforce Leadership	3
PSLS 4740	Advanced Sales	3



joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program option, to ensure that the limit of nine hours taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when they meet all undergraduate degree requirements.

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**Accrediting Body: Association to Advance Collegiate Schools of Business (AACSB) International.**

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BUAD 1010	Introduction To Business	3
ENGL 1110	College Composition I	3
MATH 1320	College Algebra <sup>3</sup>	3
Arts/Humanities Core <sup>1</sup>		3
Social Science Core <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
Second Term		Hours
BUAD 1020	Micro-Computer Applications In Business	3
ENGL 2960	Professional and Business Writing	3
ECON 1150	Principles Of Macroeconomics	3
Diversity of US <sup>1</sup>		3
Natural Sciences Core <sup>1</sup>		3
Natural Sciences Laboratory <sup>1</sup>		1
<b>Hours</b>		<b>16</b>
Third Term		Hours
BUAD 2000	Career Development I	1
BUAD 2020	Information Technology Management	3
BUAD 2030	Executive Communication Essentials	3
BUAD 2040	Financial Accounting Information	3
BUAD 2060	Business Statistics	3
ECON 1200	Principles Of Microeconomics	3
<b>Hours</b>		<b>16</b>
Fourth Term		Hours
BUAD 2050	Accounting For Business Decision-Making	3
BUAD 2070	Business Analytics	3
BUAD 2080	Global Environment Of Business	3

Arts/Humanities Core <sup>1</sup>		3
Natural Science Core <sup>1</sup>		3
<b>Hours</b>		<b>15</b>
Fifth Term		Hours
BUAD 3000	Career Development II	1
BUAD 3010	Principles Of Marketing	3
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
BUAD 3040	Principles Of Financial Management	3
BUAD 3470	The Legal And Ethical Environment Of Business	3
Non-US Diversity <sup>1</sup>		3
<b>Hours</b>		<b>16</b>
Sixth Term		Hours
BUAD 3020	Principles Of Manufacturing And Service Systems	3
PSLS 3440	Professional Sales	3
PSLS 3450	Sales Technologies and Strategies	3
PSLS 3080	Purchasing And Business Relationship Management	3
Minor/Business Elective <sup>2</sup>		3
<b>Hours</b>		<b>15</b>
Seventh Term		Hours
BUAD 4020	Senior Business Policy Forum	3
PSLS 4710	Salesforce Leadership	3
PSLS 4940	Integrative Capstone: Sales Internship	3
Minor/Business Elective <sup>2</sup>		3
Elective		2
<b>Hours</b>		<b>14</b>
Eighth Term		Hours
MKTG 4540	Business Marketing	3
PSLS 4740	Advanced Sales	3
Minor/Business Elective <sup>2</sup>		3
Elective		3
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> Select from approved University core course work, see degree audit for course selection.

<sup>2</sup> Minor elective or 3000/4000 level Business elective if no Business minor is selected.

<sup>3</sup> Acceptable replacements include MATH 1260 or 1270 or 1340 or 1730 or 1750 or 1760 or 1850 or 1860 or 2450 or 2460

- PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community.
- PLO 2: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.
- PLO 3: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound



inferences from and use effective problem-solving and decision-making techniques.

- PLO 4: Business Acumen – Each Student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business.
- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity.
- PLO 6: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior.
- PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies.

## Consultative Sales, Post Baccalaureate Certificate

Code	Title	Hours
<b>Required</b>		
PSLS 3440	Professional Sales	3
PSLS 3450	Sales Technologies and Strategies	3
PSLS 3080	Purchasing And Business Relationship Management	3
<b>Electives</b>		
Select two of the following:		6
PSLS 4710	Salesforce Leadership	
	or BUAD 3010 Principles Of Marketing	
	or MKTG 4540 Business Marketing	
<b>Total Hours</b>		<b>15</b>

- PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community.
- PLO 2: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.
- PLO 3: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound inferences from and use effective problem-solving and decision-making techniques.
- PLO 4: Business Acumen – Each Student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business.
- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity.
- PLO 6: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior.
- PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies.

## Minors

### Business Minor or Business Electives for Business Students

9 hours + Required Business Core BUAD course will serve as the fourth course to meet minor requirements of 12 credit hours

As part of the minimum 10 course required in the area of specialization requirement in the B.B.A. degree, students complete 3 junior/senior level Business electives or a 3 courses toward an approved Business minor in addition to the 7 courses required in their major. A second Business minor may be completed with 9 additional hours. Required Business Core BUAD courses serve as the prerequisite 4th course to meet minor requirements. Minors which include courses outside of the college will require more than 3 additional courses.

The following minors are **ONLY** available for Neff College of Business and Innovation students. Students cannot duplicate credit in their minor, area of specialization and upper division core. The minor consists of three courses (9 hours), unless otherwise noted. Select the following link for Business minors for **non-business** students Business minors for non-business majors (p. 558).

#### Degrees Offered

- Accounting Minor (p. 553)
- Business Information Security (CyberSecurity) Minor (p. 554)
- Business Law Minor (p. 554)
- Digital Marketing Minor (p. 554)
- Enterprise Resource Management Minor (p. 554)
- Entrepreneurship, Family, & Small Business Minor (p. 554)
- Finance Minor (p. 555)
- Financial Data Analytics Minor (p. 555)
- Information Systems Minor (p. 555)
- International Business Minor (p. 555)
- Leadership Minor (p. 555)
- Management Minor (p. 556)
- Marketing Minor (p. 556)
- Professional Sales Minor (p. 557)
- Operations and Supply Chain Management Minor (p. 556)
- Sustainability Minor (p. 557)

## Accounting Minor

Non-Accounting major Accounting courses are currently not being offered. College of Business and Innovation students who wish to add an Accounting minor must meet the requirements for the Accounting courses currently being offered, including all pre-requisites and GPA requirements.

Students who meet the eligibility requirements to enroll in Accounting major courses (minimum 2.75 higher ed GPA and 2.75 in BUAD 2040 + BUAD 2050 or equivalent courses), may select any 3 ACCT major courses to meet the requirements of an ACCT minor beginning with ACCT 3100.



Required Business Core BUAD course will serve as the fourth course to meet minor requirements.

## Business Information Security Minor (CyberSecurity)

**Business Information Security** (Cybersecurity) requires 9 credit hours.

Cyber Security is a rapidly growing field which is very important to business and governmental organizations. Information security jobs, in both the private and public sectors, are growing at a very fast pace, based on bureau of labor statistics data and informal feedback from the departmental ISAC advisory group. Information Systems professionals are increasingly being required to have exposure in cyber security.

BUAD 2020 is a required pre-requisite course taken as part the upper division business core courses.

**Business Information Security** (CyberSecurity) Requirements

Code	Title	Hours
INFS 3370	Business Data Communications	3
INFS 3400	Principles of Information Systems Security	3
INFS 4100	Business Intelligence Using Big Data	3
Required Business Core BUAD course will serve as the fourth course to meet minor requirements.		3
<b>Total Hours</b>		<b>12</b>

## Business Law Minor

Code	Title	Hours
<b>Required Courses</b>		
Select three of the following:		9
BLAW 3550	Legal And Safety Compliance Issues In Human Resource Management	
BLAW 3570	The Laws Of Structuring And Operating A Business	
BLAW 3670	(Not Currently Offered)	
BLAW 4570	Legal And Ethical Aspects Of Managing Innovation And Technology	
BLAW 4580	Detection And Prevention Of Deceptive Business Practices	
MGMT 3770	Ethics In Leadership And Management	
Required Business Core BUAD course will serve as the fourth course to meet minor requirements.		3
<b>Total Hours</b>		<b>12</b>

## Digital Marketing Minor

Code	Title	Hours
<b>Required Courses:</b>		
MKTG 3280	Digital Marketing	3
or PSLS 3450	Sales Technologies and Strategies	
MKTG 3380	Digital Content Development	3
MKTG 3480	Digital Marketing Tools and Analytics	3

**Required Business Core BUAD course will serve as the fourth course to meet minor requirements** 3

**Total Hours** 12

- PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community\\n
- PLO 2: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.\\n
- PLO 3: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound inferences from and use effective problem-solving and decision-making techniques.\\n
- PLO 4: Business Acumen – Each Student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business\\n
- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity\\n
- PLO 6: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior\\n
- PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies

## Enterprise Resource Management Minor

BUAD 2020 is a required pre-requisite course for the Enterprise Resource Management minor and is taken as part of the Business core courses.

Code	Title	Hours
INFS 3780	Enterprise Wide Information Systems Management	3
INFS 4100	Business Intelligence Using Big Data	3
INFS 4680	Enterprise Systems Implementation and Integration	3
Required Business Core BUAD course will serve as the fourth course to meet minor requirements.		3
<b>Total Hours</b>		<b>12</b>

## Entrepreneurship, Family, & Small Business Minor

Code	Title	Hours
<b>Required Courses</b>		
EFSB 4590	Entrepreneurship and Small Business Management	3
EFSB 4010	Growing Family And Entrepreneurial Businesses	3
EFSB 3480	Entrepreneurial Finance	3

With departmental approval, the following may be used as a substitution in the minor – consult an academic advisor:

EFSB 4690	Strategic Management of Innovation	
Required Business Core BUAD course will serve as the fourth course to meet minor requirements.		3
<b>Total Hours</b>		<b>12</b>

## Finance Minor

Code	Title	Hours
<b>Required Courses</b>		
FINA 3480	Investments	3
FINA 4080	Intermediate Financial Management	3
FINA 4090	Financial Markets And Institutions	3
Required Business Core BUAD course will serve as the fourth course to meet minor requirements.		3
<b>Total Hours</b>		<b>12</b>

## Financial Data Analytics Minor

This Minor is specifically designed for Accounting and Finance majors. Data and business analytics has become a significant element of the accounting and finance occupations. This minor will help our accounting and finance majors to improve their skills and align it with the market needs.

Code	Title	Hours
BUAD 3040	Principles Of Financial Management (This course is a pre-requisite course taken as part of the Business Core.)	
BUAD 2020	Information Technology Management (This course is a pre-requisite course taken as part of the Business Core.)	
FINA 3890	Financial Modeling with Excel (Required)	3
OSCM 4250	Business Analytics-Techniques and Cases (Required)	3
Elective - Choose one of the following:		3
INFS 3150	Principles Of Structured Computer Programming And Problem Solving	
INFS 3400	Principles of Information Systems Security	
INFS 4100	Business Intelligence Using Big Data	
Required Business Core BUAD course will serve as the fourth course to meet minor requirements.		3
<b>Total Hours</b>		<b>12</b>

## Information Systems Minor

Code	Title	Hours
<b>Required Course</b>		
Select one of the following:		3
INFS 3250	Business Data Analysis & Reporting	
INFS 3150	Principles Of Structured Computer Programming And Problem Solving	
<b>Electives</b>		
Select two of the following:		6

INFS 3150	Principles Of Structured Computer Programming And Problem Solving	
INFS 3250	Business Data Analysis & Reporting	
INFS 3370	Business Data Communications	
INFS 3400	Principles of Information Systems Security	
INFS 3770	Introduction To Database Systems	
INFS 3780	Enterprise Wide Information Systems Management	
INFS 3980	Contemporary Topics	
INFS 4100	Business Intelligence Using Big Data	
INFS 4300	Web Application Development II	
INFS 4320		
INFS 4620	Enterprise Database Systems	
Required Business Core BUAD course will serve as the fourth course to meet minor requirements.		3
<b>Total Hours</b>		<b>12</b>

## International Business Minor

Code	Title	Hours
Select three of the following, taking into consideration any prerequisites:		9
BLAW 3670		
FINA 3500	International Business Finance	
IBUS 3600	International Management	
IBUS 4360	Global Business	
IBUS 3150	Understanding Cultural Differences For Business	
MKTG 3140	International Marketing	
MKTG 4220	International Sourcing, Logistics And Transportation	
PSLS 4500	International Sales Negotiation	
Required Business Core BUAD course will serve as the fourth course to meet minor requirements.		3
<b>Total Hours</b>		<b>12</b>

## Leadership Minor

Code	Title	Hours
Prerequisite: BUAD 3030 (Management and Organizational Processes)		
MGMT 4330	Leading Organizational Change and Development	3
MGMT 4780	Leading and Managing People	3
Choose two of the following:		
HURM 3220	Human Resource Management	
MGMT 3630	Conflict Management: Mediation & Negotiations	
MGMT 3700	Best Practices in Diversity Leadership	
MGMT 3770	Ethics In Leadership And Management	
MGMT 4210		
<ul style="list-style-type: none"> <li>PLO 1. Students will gain insight into the role of the leader in creating and sustaining strong organizational culture.</li> </ul>		

- PLO 2. Students will assess their own leadership competencies, and develop a plan to strengthen them.
- PLO 3. Students will explore the role of emotional intelligence in leading people, instituting changes in organizations, and mediating conflicts.
- PLO 4. Students will learn the importance of diversity and inclusion in making ethical decisions and solving problems.

## Management Minor

BBA students take the required BUAD 3030 course as part of their required upper division subset. The course is not repeated for purposes of counting toward the Management Minor.

Code	Title	Hours
<b>Required Courses</b>		
BUAD 3030	Managerial And Behavioral Processes In Organizations	3
MGMT 4330	Leading Organizational Change and Development	3
MGMT 4780	Leading and Managing People	3
Select ONE of the following:		3
HURM 3220	Human Resource Management	
MGMT 3630	Conflict Management: Mediation & Negotiations	
MGMT 3700	Best Practices in Diversity Leadership	
MGMT 3770	Ethics In Leadership And Management	
<b>Total Hours</b>		<b>12</b>

- PLO 1. To learn how to facilitate individual employee development and organizational improvements.
- PLO 2. To practice planning and implementing change as a manager and leader.
- PLO 3. To learn and practice the ethical behaviors required to be a successful manager and leader.
- PLO 4. To recognize the benefits, both individual and organizational, of creating a diverse and inclusive organization.
- PLO 5. To develop students' emotional intelligence and conflict resolution skills.

## Marketing Minor

Code	Title	Hours
<b>Required</b>		
Select one of the following:		3
MKTG 3850	Buyer Behavior And Relationship Marketing	
	or MKTG 3690 Marketing Communications	
<b>Electives</b>		
Select two additional of the following:		6
MKTG 3850	Buyer Behavior And Relationship Marketing	
MKTG 3280	Digital Marketing	
MKTG 3690	Marketing Communications	
MKTG 3880	Marketing Research And Data Analytics	
MKTG 3140	International Marketing	
MKTG 4540	Business Marketing	

MKTG 3130	Supply Chain Management	
MKTG 3920	Sports Marketing	
MKTG 4220	International Sourcing, Logistics And Transportation	
MKTG 4980	Special Topics	
PSLS 3080	Purchasing And Business Relationship Management	
PSLS 3440	Professional Sales	
PSLS 4710	Salesforce Leadership	
PSLS 3450	Sales Technologies and Strategies	
<b>Required Business Core BUAD course will serve as the fourth course to meet minor requirements</b>		<b>3</b>
BUAD 3010	Principles Of Marketing	
<b>Total Hours</b>		<b>12</b>

- PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community.
- PLO 2: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.
- PLO 3: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound inferences from and use effective problem-solving and decision-making techniques.
- PLO 4: Business Acumen – Each Student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business.
- PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity.
- PLO 6: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior.
- PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies.

## Operations & Supply Chain Management Minor

Code	Title	Hours
<b>Prerequisite</b>		
BUAD 3020	Principles Of Manufacturing And Service Systems	
Select three of the following:		9
OSCM 3340	Quality Management and Process Improvement	
OSCM 3610	Operations Planning and Scheduling	
OSCM 3660	Strategic Sourcing	
OSCM 4150	Supply Chain Analytics and Cases	
OSCM 4250	Business Analytics-Techniques and Cases	
OSCM 4760	Sim Mod/Anlys Spply Chn System	
MKTG 3130	Supply Chain Management	

MKTG 4220	International Sourcing, Logistics And Transportation	
Required Business Core BUAD course will serve as the fourth course to meet minor requirements.		3
<b>Total Hours</b>		<b>12</b>

## Professional Sales Minor

Code	Title	Hours
<b>Required</b>		
PSLS 3440	Professional Sales	3
<b>Electives</b>		
Select two of the following:		6
PSLS 3080	Purchasing And Business Relationship Management	
PSLS 3450	Sales Technologies and Strategies	
PSLS 4500	International Sales Negotiation	
PSLS 4710	Salesforce Leadership	
PSLS 4740	Advanced Sales	
MKTG 4540	Business Marketing	
Required Business Core BUAD course will serve as the fourth course to meet minor requirements.		3
<b>Total Hours</b>		<b>12</b>

## Sustainability Minor

The Sustainability Minor provides students a wide breadth of knowledge, content, and context in the increasingly important, globally relevant area of sustainability and climate change. This is a unique interdisciplinary minor combining courses from the John B. and Lillian E. Neff College of Business as well as the College of Natural Sciences and Mathematics, the College of Engineering, and the College of Arts and Letters. Each of the four required courses are taught in a different college which provides students a rich and varied experience that spans multiple disciplines, ideas, challenges, and solutions regarding sustainability. The minor requirements are the same for any student regardless of what is listed as their "home" college. Because of this, the minor requirements are somewhat different from other minors in the College of Business.

General advising issues should be directed to the College of Business and Innovation's Office of Student Retention and Academic Success in SB 3130 or [cobiadvising@utoledo.edu](mailto:cobiadvising@utoledo.edu).

Code	Title	Hours
<b>Program Requirements - 5 Courses - 15 hours</b>		
<i>Required - 3 Courses - 9 hours</i> <small>Any courses in this list not taken as a Required Course may be taken as an Elective Course.</small>		9
GNEE 1500	Sustainability Living	
BUAD 3500	Sustainable Business Practices	
EEES 2020	Introduction to the Environment: Energy and Climate	
or EEES 2030 Introduction to the Environment Land-Use and Water		
PHIL 3180	Environmental Ethics	
<i>Electives - 2 Courses - 6 hours - Select two from:</i>		6

GENERAL ELECTIVE COURSES		
CHEM 1100	Chemistry And Society	
GEPL 1100	Environmental Sustainability	
EEES 1010	Physical Geology	
EEES 1150	Marine Biology	
EEES 2100	Fundamentals Of Geology	
EEES 2150	Biodiversity	
EEES 2200	Climate Change	
EEES 3600	Oceanography	
BUAD 3020	Principles Of Manufacturing And Service Systems	
IBUS 4360	Global Business	
<b>Total Hours</b>		<b>15</b>

Code	Title	Hours
<b>SOCIAL SCIENCE FOCUS – SUGGESTED ELECTIVE COURSES</b>		
EEES 4850	Dimensions of Sustainability	
ECON 3240	Environmental Economics	
ECON 3260	The Economics of Climate Change	
ECON 3270	Natural Resource Economics - WAC	
ECON 4240	Applied Environmental Economics	
GEPL 3900	Environmental Planning	
GEPL 4160	Patterns Of World Development	
PSC 4340	Environmental Policy	

Code	Title	Hours
<b>STEM FOCUS – SUGGESTED ELECTIVE COURSES</b>		
EEES 4850	Dimensions of Sustainability	
CHEM 4200	Green Chemistry	
CHEM 4210	Environmental Chemistry	
PHYS 3400	Physical Principles Of Energy Sources For Humans	
CHEE 4120	Biofuels	
CIVE 4690	Sustainability Engineering	
MIME 4410	Alternative Energy	
MIME 4820	Sustainability Analysis and Design	

- PLO 1. Discuss the history of the environmental movement and environmental science process.
- PLO 2. Identify the components of sustainability.
- PLO 3. Compare the different ways of evaluating environmental impacts and identify behavioral changes that reduce environmental impact.
- PLO 4. Critically analyze the concept of sustainability, especially with respect to economic, social, and ecological dimensions.
- PLO 5. Articulate and apply the key concepts and processes of sustainability as they relate to businesses (e.g., triple bottom line, social responsibility, systems thinking, life cycle analysis, social entrepreneurship, base of the pyramid).
- PLO 6. Discuss the role and responsibilities of business in society.



## Business Minors for Non-Business Students

The College of Business and Innovation offers a general minor and specialty minors (accounting; entrepreneurship, family and small business; international business; marketing; professional sales; and operations/supply chain management) for students in non-business programs at The University of Toledo.

These minors are recommended for students who want to enhance their academic programs with business-related course work. Students taking courses in the business minor must meet course prerequisite requirements. These minors are designed specifically for non-business students and should not be confused with the individual minors offered for College of Business and Innovation students. **Students can complete a maximum of two minors and may take no more than one course that fulfills the requirements of both minors.** Students should contact advisors in the College of Business and Innovation for additional details about the course requirements of business minors and contact advisors in their home college to determine how the business minor will fit into their degree curriculum.

### Degrees Offered

- Accounting Minor for Non-Business Students (p. 558)
- Digital Marketing Minor for Non-Business Students (p. 558)
- Entrepreneurship, Family, and Small Business Minor for Non-Business Students (p. 559)
- General Minor for Non-Business Students (p. 559)
- International Business Minor for Non-Business Students (p. 559)
- Marketing for Non-Business Students (p. 560)
- Operations Management/Supply Chain Management for Non-Business Students (p. 560)
- Professional Sales Minor for Non-Business Students (p. 560)

## Accounting Minor for Non-Business Students

The accounting minor for non-business students requires 15 credit hours. A grade of C (2.0) or higher is required in all courses used to fulfill the accounting minor requirements. Prerequisites for all courses must be fulfilled.

Code	Title	Hours
<b>Required Course</b>		
ACCT 3100	Data Analytics in Accounting <sup>1</sup>	3
<b>Electives</b>		
Select four of the following:		12
ACCT 3110	Intermediate Financial <sup>1 2</sup>	
ACCT 3310	Accounting Information Systems And Controls <sup>2</sup>	
ACCT 3210	Individual Taxation <sup>2</sup>	
ACCT 3320	Cost Accounting <sup>2</sup>	
ACCT 3120	Intermediate Financial <sup>2 3</sup>	

FINA 4080	Intermediate Financial Management <sup>4</sup>	
<b>Total Hours</b>		<b>15</b>

<sup>1</sup> Prerequisite: Junior standing; a higher education GPA of 2.750 or higher and a 2.750 or higher GPA in BUAD 2040 and BUAD 2050 (or equivalent courses), which must include a grade of C (2.0) or higher in BUAD 2040 and BUAD 2050 (or equivalent courses).

<sup>2</sup> Prerequisite: ACCT 3100 with a grade of C (2.0) or better.

<sup>3</sup> Prerequisite: ACCT 3110 with a grade of C (2.0) or better.

<sup>4</sup> Prerequisite: BUAD 3040 with a grade of C (2.0) or better.

## Digital Marketing for Non-Business Students

Code	Title	Hours
<b>Required Course in Economics</b>		
Select one of the following:		3
ECON 1200	Principles Of Microeconomics	
MIME 2600	Engineering Economics	
<b>Required Business Classes:</b>		<b>12</b>
BUAD 3010	Principles Of Marketing	
MKTG 3280	Digital Marketing	
MKTG 3380	Digital Content Development	
MKTG 3480	Digital Marketing Tools and Analytics	
<b>Total Hours</b>		<b>15</b>

• PLO 1: Ethics and Social Responsibility – Each student can analyze and resolve ethical issues in decision-making and recognize their impact on the larger community\\n

• PLO 2: Innovation and Creativity – Each student can examine problems, opportunities, relationships, and situations from different and unique perspectives and develop creative solutions.\\n

• PLO 3: Critical Thinking and Analysis – Each student can think critically to identify problems, research, analyze and make sound inferences from and use effective problem-solving and decision-making techniques.\\n

• PLO 4: Business Acumen – Each Student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business\\n

• PLO 5: Technology – Each student can understand and utilize current and emerging technology to improve business competitiveness and personal productivity\\n

• PLO 6: Professionalism – Each student can demonstrate effective oral and written communication, interpersonal collaboration, responsibility, accountability and professional behavior\\n

• PLO 7: Leadership – Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership competencies\\n

## Entrepreneurship, Family, and Small Business Minor for Non-Business Students

Prerequisites for all courses must be fulfilled. A grade of "C" (2.00) or higher is required in all courses.

Code	Title	Hours
<b>Required Business Courses</b>		
EFSB 3500	Introduction To Entrepreneurship for Non-Business Students	3
BUAD 2040	Financial Accounting Information	3
	or ACTG 1040 Principles Of Financial Accounting	
EFSB 3480	Entrepreneurial Finance	3
EFSB 4590	Entrepreneurship and Small Business Management	3
EFSB 4010	Growing Family And Entrepreneurial Businesses	3
<b>Business Elective</b>		
Select one of the following:		
BUAD 3010	Principles Of Marketing	3
EFSB 4690	Strategic Management of Innovation	
EFSB 4790		
<b>Total Hours</b>		<b>18</b>

## General Minor for Non-Business Students

Code	Title	Hours
<b>Required Prerequisite Courses</b> <sup>1</sup>		
<i>Economics</i>		
Select one of the following:		
ECON 1150	Principles Of Macroeconomics	
& ECON 1200	and Principles Of Microeconomics <sup>2</sup>	
MIME 2600	Engineering Economics (or equivalent)	
<i>Mathematics</i>		
Select from any UT CORE Math course except statistics		
<i>Computing</i>		
Select one of the following:		
BUAD 1020	Micro-Computer Applications In Business	
CMPT 1100	Microsoft Office Applications	
or approved equivalent		
<i>Business Statistics</i>		
Select one of the following:		
BUAD 2060	Business Statistics <sup>2</sup>	
MATH 2600	Introduction To Statistics	
or equivalent		
<b>Required Foundation Course</b> <sup>3</sup>		
BUAD 2040	Financial Accounting Information <sup>2</sup>	3
	or ACTG 1040 Principles Of Financial Accounting	
<b>Additional Requirements</b> <sup>3,4</sup>		

Select 3 courses from the following with at least one course at 3000 level to avoid additional coursework:<sup>5</sup>

BUAD 1010	Introduction To Business	
	or BMGT 101 Business Principles	
BUAD 2050	Accounting For Business Decision-Making <sup>2</sup>	
	or ACTG 105 Principles Of Management Accounting	
BUAD 2070	Business Analytics <sup>2</sup>	
BUAD 2080	Global Environment Of Business	
	or BMGT 211 Managing In A Global Economy	
BUAD 3010	Principles Of Marketing <sup>2</sup>	
	or MARS 101 Marketing Principles	
BUAD 3020	Principles Of Manufacturing And Service Systems <sup>2</sup>	
BUAD 3030	Managerial And Behavioral Processes In Organizations	
BUAD 3040	Principles Of Financial Management <sup>2</sup>	
BUAD 3470	The Legal And Ethical Environment Of Business	
	or BMGT 231 Legal Environment Of Business	
BUAD 2020	Information Technology Management	
Select two additional 3000/4000 level Business courses <sup>6</sup>		6
<b>Total Hours</b>		<b>18</b>

<sup>1</sup> A minimum cumulative GPA of 2.25 is required in the following prerequisite courses or their equivalents. A student who does not meet the minimum standards but has at least a cumulative 2.0 in the prerequisites will be reviewed by the College of Business and Innovation on an individual basis.

<sup>2</sup> Prerequisites for an MBA can also be fulfilled by completing the indicated courses with a minimum grade of C (2.0).

<sup>3</sup> Beyond the prerequisite courses above, at least one of which must be at the 3000 level to avoid additional coursework. A grade of C (2.0) or higher is required in each of the following courses.

<sup>4</sup> At least three of the five courses selected to fulfill the additional minor in business requirements must be at the 3000 or 4000 level.

<sup>5</sup> Approved associate degree equivalents courses are shown as the second course. (Prerequisites for selected courses must be fulfilled.)

<sup>6</sup> Select **two** additional 3000 or 4000 level courses from the 6 listed above or select two courses at the 3000 or 4000 level from ACCT, FINA, INFS, MGMT, EFSB, IBUS, EBUS, OSCM, HURM, PSLS, BLAW or MKTG to complete the additional requirements. (Prerequisites for selected courses must be fulfilled.)

## International Business Minor for Non-Business Students

The international business minor for non-business students requires 18 to 21 hours of business courses (including international business electives). Prerequisites for all courses must be fulfilled. A grade of "C" (2.00) or higher is required in all courses.

Code	Title	Hours
<b>Required Course in Economics</b>		
Select one of the following: <sup>1</sup>		



ECON 1150	Principles Of Macroeconomics	
& ECON 1200	and Principles Of Microeconomics	
MIME 2600	Engineering Economics (or equivalent)	
<b>Required Business Courses</b>		
BUAD 2080	Global Environment Of Business (Prerequisite: Sophomore standing)	3
Select two of the following:		6
BUAD 3010	Principles Of Marketing <sup>2</sup>	
BUAD 3030	Managerial And Behavioral Processes In Organizations (Prerequisite: Junior standing)	
BUAD 3040	Principles Of Financial Management <sup>3</sup>	
<b>International Business Electives</b>		
Select at least two of the following:		6
IBUS 3600	International Management (Prerequisite: Junior standing) <sup>4</sup>	
MKTG 3140	International Marketing <sup>5</sup>	
FINA 3500	International Business Finance <sup>6</sup>	
Select one of the following pending availability or select all three courses from previous section.		3
IBUS 3150	Understanding Cultural Differences For Business (Prerequisite: Junior standing)	
IBUS 4100	Study Abroad Program <sup>7</sup>	
IBUS 4180	(Prerequisite: Junior standing)	
MKTG 3260	(Prerequisite: Junior standing)	
MKTG 4220	International Sourcing, Logistics And Transportation <sup>8</sup>	
BLAW 3670	<sup>4</sup>	
<b>Total Hours</b>		<b>18</b>

<sup>1</sup> These are not business course hours and do not count toward the 18 hours of business courses required in the program.

<sup>2</sup> Prerequisites: ECON 1200 Or MIME 2600, Junior standing.

<sup>3</sup> Prerequisite: BUAD 2040 Financial Accounting Information.

<sup>4</sup> Prerequisite: BUAD 3030.

<sup>5</sup> Prerequisite: BUAD 3010.

<sup>6</sup> Prerequisite: BUAD 3040.

<sup>7</sup> Subject to approval of departmental chair or IB faculty adviser.

Prerequisite: Permission of Chair and Faculty.

<sup>8</sup> Prerequisite: BUAD 2080.

## Marketing for Non-Business Students

The marketing minor for non-business students requires 18 hours. Prerequisites for all courses must be fulfilled. A grade of "C" (2.00) or higher is required in all business courses.

Code	Title	Hours
<b>Required Course: Economics Pre-requisite</b>		
ECON 1200	Principles Of Microeconomics	3
or MIME 2600	Engineering Economics	
<b>Required Marketing Courses</b>		

BUAD 3010	Principles Of Marketing	3
MKTG 3850	Buyer Behavior And Relationship Marketing	3
<b>Marketing Electives</b>		
Select three of the following:		9
MKTG 3140	International Marketing	
MKTG 3280	Digital Marketing	
MKTG 3690	Marketing Communications	
MKTG 3920	Sports Marketing	
MKTG 4540	Business Marketing	
PSLS 3440	Professional Sales	
<b>Total Hours</b>		<b>18</b>

## Operations Management/Supply Chain Management for Non-Business Students

Students must complete statistics and BUAD 3020 or equivalent as prerequisite and 15 credit hours.

Code	Title	Hours
Select 15 hours of the following:		
MKTG 3130	Supply Chain Management	
EBUS 3090	Doing Business Digitally	
MKTG 4220	International Sourcing, Logistics And Transportation	
OSCM 3660	Strategic Sourcing	
OSCM 4420		
OSCM 3340	Quality Management and Process Improvement	
OSCM 3610	Operations Planning and Scheduling	
<b>Total Hours</b>		<b>15</b>

## Professional Sales Minor for Non-Business Students

The professional sales minor for non-business students requires 15 hours. Prerequisites for all courses must be fulfilled. If a student elects to take BUAD 3010 as an elective, ECON 1200 or MIME 2600 is required as an additional pre-requisite. A grade of "C" (2.00) or higher is required in all courses.

Code	Title	Hours
<b>Required Business Courses</b>		
PSLS 3440	Professional Sales	3
PSLS 3450	Sales Technologies and Strategies	3
PSLS 4740	Advanced Sales	3
<b>Business Elective</b>		
Select two of the following:		6
BUAD 3010	Principles Of Marketing	
PSLS 3080	Purchasing And Business Relationship Management	



PSLS 4710 Salesforce Leadership

**Total Hours** 15

## Workplace Certificates - Non-Degree Granting Programs

While not an official academic designation on a transcript, these workplace certificates have credit-bearing courses which appear on an official transcript and give added value to career goals.

Coursework may also be applied to future degree programs. Review of these scenarios must be discussed with a COBI academic advisor.

### Degrees Offered

- Business Management Technology Workplace Certificate (p. 561)
- Computer Network Administration Workplace Certificate (p. 561)
- Computer Software Specialist Workplace Certificate (p. 561)
- Consultative Sales (Post Baccalaureate) Workplace Certificate (p. 561)
- Digital Marketing (Post Baccalaureate) Workplace Certificate (p. 561)
- Information Services and Support Workplace Certificate (p. 562)
- Programming and Software Development Workplace Certificate (p. 562)
- Web Design Workplace Certificate (p. 562)

## Business Management Technology Workplace Certificate

Code	Title	Hours
BMGT 1010	Business Principles	3
BMGT 1540	Organizational Behavior	3
BMGT 2010	Workplace Management	3
BMGT 2020	Human Resource Development	3
BMGT 2110	Managing In A Global Economy	3
<b>Total Hours</b>		<b>15</b>

## Computer Network Administration Workplace Certificate

Code	Title	Hours
CMPT 1110	Pc Operating Systems	3
CNET 2100	Microsoft Operating Systems	3
CNET 2150	Computer Hardware	3
CNET 2200	Network Technologies	4
CNET 2400	Network Operating System Support	4
<b>Total Hours</b>		<b>17</b>

## Computer Software Specialist Workplace Certificate

Code	Title	Hours
Under Review, limited course availability.		
CMPT 1410	Microsoft Excel Spreadsheet Application	2
CMPT 1420	Microsoft Access Database Applications	2
CMPT 1430	Microsoft Word	2
CMPT 1440	Microsoft Powerpoint Presentations	2
CMPT 2410	Adobe InDesign Desktop Publishing	3
<b>Total Hours</b>		<b>11</b>

## Consultative Sales (Post Baccalaureate) Workplace Certificate

Code	Title	Hours
<b>Required</b>		
PSLS 3440	Professional Sales	3
PSLS 3450	Sales Technologies and Strategies	3
PSLS 3080	Purchasing And Business Relationship Management	3
<b>Electives</b>		
Select two of the following:		6
BUAD 3010	Principles Of Marketing <sup>1</sup>	
PSLS 4710	Salesforce Leadership	
PSLS 4500	International Sales Negotiation	
MKTG 4540	Business Marketing	
<b>Total Hours</b>		<b>15</b>

<sup>1</sup> Required if student has not taken Marketing Principles.

## Digital Marketing (Post Baccalaureate) Workplace Certificate

Code	Title	Hours
<b>Required</b>		
MKTG 3280	Digital Marketing	3
MKTG 3260		3
EBUS 4150	Social Media Marketing	3
<b>Electives</b>		
Select two of the following:		6
BUAD 3010	Principles Of Marketing <sup>1</sup>	
EBUS 4040	Digital Business Intelligence	
MKTG 3690	Marketing Communications	
MKTG 3850	Buyer Behavior And Relationship Marketing	
MKTG 4980	Special Topics	
<b>Total Hours</b>		<b>15</b>



<sup>1</sup> Required if student has not taken Marketing Principles.

## Information Services and Support Workplace Certificate

Code	Title	Hours
CMPT 1020	Computer Concepts	4
CMPT 1410	Microsoft Excel Spreadsheet Application	2
CMPT 1420	Microsoft Access Database Applications	2
CNET 2150	Computer Hardware	3
CNET 2200	Network Technologies	4
<b>Total Hours</b>		<b>15</b>

## Programming and Software Development Workplace Certificate

Code	Title	Hours
CMPT 1020	Computer Concepts	4
CMPT 1120	Visual Basic Programming	4
CMPT 2030	C Family Programming	4
CNET 2150	Computer Hardware	3
<b>Total Hours</b>		<b>15</b>

## Web Design Workplace Certificate

Code	Title	Hours
Under Review, limited course availability.		
CMPT 1320	Internet And The World Wide Web	1
CMPT 1400	Dreamweaver Web Page Developmnt	3
CMPT 1500	Flash Web Animation	3
CMPT 1600	Internet Design And Publishing	3
CMPT 1700	Blogging and Social Networking	3
CMPT 2620	Web Site Maintenance	3
<b>Total Hours</b>		<b>16</b>

## Faculty

### Department of Accounting

**Heba Yousef Abdel-Rahim**, 2016, Associate Professor, B.S., Assiut University; M.S., University of Florida; Ph.D., Georgia State University

**Mai T. Dao**, 2009, Professor, B.B.A., Flinders University; M.S., Maastricht University; Ph.D., Florida International University

**Diana R. Franz**, 1992, Professor, Masters of Professional Accountancy, Wichita State University; Ph.D., Texas Tech University

**Karen Y. Green**, 2015, Associate Professor, A.A., Henry Ford Community College; A.A., Henry Ford Community College; B.B.A., University of Michigan-Dearborn; M.S., University of Michigan-Dearborn; Ph.D., Virginia Commonwealth University

**Meng Huang**, 2020, Assistant Professor, B.B.A., Jilin University, M.S.A., University of North Texas, M.S.A. University of North Texas, M.S. Economics, Eastern Illinois University

**Deidre A. Liedel**, 2015, Associate Lecturer, B.B.A., University of Toledo; J.D., University of Toledo College of Law

**Nancy L. Snow**, 1998, University Distinguished Lecturer, B.B.A., University of Toledo; M.S., University of Toledo

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### Department of Applied Organizational Technology

**Bonadine Berry**, 2000, Senior Lecturer, B.A., Siena Heights University

**Mary Humphrys**, 1989, Chair and Associate Professor, B.A., M.B.A., University of Toledo

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### Department of Finance

**Collin M. Gilstrap**, 2016, Associate Professor, B.S., Clemson University, Ph.D. University of Alabama

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**Marc W. Simpson**, 2013, Neff Endowed Chair and Professor, B.A., Oregon State University; M.A., Fordham University; Ph.D., Fordham University

**Pavel Teterin**, 2018, Assistant Professor, B.S., B.B.A., University of Montevallo; M.S., University of Alabama

**Shawn Tysiak**, 1994, Senior Lecturer, B.B.A., University of Toledo; M.B.A., University of Toledo

**Jue Wang**, 2020, Assistant Professor, B.S., Peking University, B.A., Peking University, M.A., Peking University, M.Sc., Chinese University of Hong Kong

**Kainan Wang**, 2012, Professor, B.S., Shandong University; M.S., McGill University; Ph.D., Washington State University

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**Fred E. Ahrens**, 2015, Associate Lecturer, M.S., University of Toledo; M.B.A., M.S., Ph.D., University of Cincinnati;

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**Benjamin T. George**, 2020, Assistant Professor, B.B.A., University of North Texas, MBA, University of North Texas, Ph.D. University of North Texas

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**Paul Hong**, 1987, Professor, B.A., Yonsei University; M.A., M.B.A., Bowling Green State University; Ph.D., University of Toledo

**Euisung Jung**, 2014, Associate Professor, B.A., M.B.A., Kyungpook National University

**Teresa A. Keefe**, 2001, University Distinguished Lecturer, B.B.A., University of Toledo; M.B.A., University of Toledo

**James Strebler**, 2016, Associate Lecturer, B.B.A., Kent State University; M.B.A., Case Western Reserve University

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**Xinghao Yan**, 2016, Associate Professor, B.S., M.S., Nankai University; M.S., Ph.D., Purdue University

**Yue Zhang**, 2010, Professor, B.B.A., Tsinghua University; M.S., Tsinghua University

## Department of Management

**Marcelo J. Alvarado Vargas**, 2013, Associate Professor, B.S., Universidad Privada Boliviana (Bolivian Private University); M.A., Florida International University; M.S., Universiteit Gent (Ghent University); Ph.D., Florida International University

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**Margaret M. Hopkins**, 2005, Professor, B.S., Newton College of the Sacred Heart; M.S., Case Western Reserve University; Ph.D., Case Western Reserve University

**Gary Insch**, 2014, Associate Professor, B.S., Brigham Young University; M.B.A., University of Utah; M.S., Ph.D., Indiana University

**Kimberly A. Nigem**, 1997, Senior Lecturer, B.B.A., University of Toledo; M.B.A., University of Toledo

**Lora F. Parent**, 2005, Senior Lecturer, B.B.A., University of Toledo; M.B.A., University of Toledo

**Donald K. Wedding**, 1968, Associate Professor, B.A., University of Louisville; M.A., University of Louisville; J.D., American University; M.B.A., University of Toledo

**Courtney E. Williams**, 2020, Assistant Professor, B.S., University of Central Florida, M.A. University of North Carolina at Charlotte

**Jenell Wittmer**, 2008, Associate Professor, B.S., College of Charleston Honore Program; M.A., Wayne State University; Ph.D., Wayne State University

**Robert D. Yonker**, 2003, Associate Professor, B.A., Bowling Green State University, M.A., University of Missouri - St. Louis; Ph.D., University of Missouri - St. Louis

## Department of Marketing

**Ainsworth A. Bailey**, 2002, Associate Professor, Diplôme, Chamber of Commerce & Industry, Paris; B.Sc. University of the West Indies; M.B.A., Baruch College-City University of New York; M.Ed., University of Toledo; M.A., University of Toledo; Ph.D., University of Iowa

**Anne L. Balazs**, Dean and Professor, Ph.D., University of Massachusetts/Amherst, A.B., Smith College

**Bashar S. Gammoh**, 2006, Associate Dean and Professor, B.A., Yarmouk University; M.B.A., University of Jordan; Ph.D., Oklahoma State University

**Tyler Hancock**, 2020, Assistant Professor, B.B.A., University of Southern Mississippi, MBA, University of Southern Mississippi, Ph.D., Mississippi State University

**Catherine M. Johnson**, 2015, Associate Professor, B.A., University of Kentucky; M.B.A., Minnesota State University; Ph.D., University of Alabama

**Michael L. Mallin**, 2005, Professor, B.S., The Ohio State University; M.B.A., The University of Dayton; Ph.D., Kent State University

**Elizabeth Napier**, 2019, Assistant Professor, B.A., Georgia State University, MIB, Georgia State University, Ph.D., Georgia State University

**Iryna Pentina**, 2008, Professor, B.A., Kharkov State University; M.A., Kharkov State University; Ph.D., Kharkov State Pedagogical University; M.B.A., University of Louisiana; Ph.D., University of North Texas

**Ellen M. Pullins**, 1996, Professor, B.S., Ohio University; M.A., The Ohio State University; M.B.A., Wright State University; Ph.D., The Ohio State University

**Susan Shultz**, 2005, Senior Lecturer, B.A., M.B.A., University of Toledo

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# Judith Herb College of Education

## 2024-2025 Undergraduate Catalog

Main Campus  
Gillham Hall  
419.530.2495  
JHCOEAdvising@UToledo.edu

### College Mission and Vision

The mission of the Judith Herb College of Education is to prepare educators, instructional leaders, and scholars who are capable of constructing and sustaining effective learning environments through the development and practice of innovative educational theories and pedagogical approaches.

Vision: Shaping the future of education for an ever-changing world.

### Accreditation

The Judith Herb College of Education is fully accredited by the Council for Accreditation of Educator Preparation (CAEP). This accreditation status is effective between fall 2023 and fall of 2030. The next on-site visit will take place in spring 2030. Additionally, all licensure programs are approved by the Ohio Department of Higher Education.

### College Administration

Dr. Rebecca Schneider, acting dean  
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Dr. Edward Janak, acting associate dean  
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## Degrees and Programs Offered

### Bachelor Degrees

Bachelor of Education in Adolescent and Young Adult Education (p. 582)

- Initial educator preparation for an Ohio educator license in Adolescent and Young Adult Education (ages 12-21/grades 7-12) in one of the following areas: Chemistry, Earth and Space Science, Integrated Language Arts, Integrated Mathematics, Integrated Science, Integrated Social Studies, Life Science, and Physics

Bachelor of Education in Early Childhood Education (p. 599)

- Initial educator preparation for an Ohio educator license in Primary Education (ages 3-10/grades PreK-5)

Bachelor of Education in Middle Childhood Education (p. 601)

- Initial educator preparation for an Ohio educator license in Middle Childhood Education (ages 8-14/grades 4-9) in two of the following

areas: Reading and Language Arts, Mathematics, Science, and Social Studies

Bachelor of Education in Multi-Age Education (p. 604)

- Initial educator preparation for an Ohio educator license in Multi-Age Education (ages 3-21/grades PreK-12) in one of the following areas: Art, Music, and Spanish

Bachelor of Education in Special Education (p. 614)

- Initial educator preparation for an Ohio educator license in Intervention Specialist (ages 5-21/grades K-12) in one of the following areas: Mild/Moderate Special Needs and Moderate/Intensive Special Needs

## UNDERGRADUATE CERTIFICATE

Certificate in Career and Technical Education (<https://catalog.utoledo.edu/undergraduate/judith-herb-education/department-teacher-education/career-technical-education-certificate/>)

- Initial educator preparation for an Ohio educator license for teaching in an approved career-tech workforce development program

Certificate in Child and Youth Work in Global Settings (p. 573)

- Experiential learning program providing educational development and recreational programming for the United States Army's children and youth in Europe

## Minors in Education

Peace Studies (p. 573)

- This interdisciplinary academic minor is open to students in all degree programs

## Academic Policies

The Judith Herb College of Education adheres to all of The University of Toledo policies and procedures. Please refer to the General Section (<https://catalog.utoledo.edu/general-section/>) of this catalog for academic policies governing all students enrolled at the University. In any case where University, college, departmental and/or program policies conflict, the most stringent policy applies. Students should consult with their program for a complete list of all policies and procedures specifically related to their program. Refer to the UToledo Policy web site (<http://www.utoledo.edu/policies/>) for most recent policies.

## STUDENT RESPONSIBILITIES

Students are responsible for correctly selecting courses for their programs of study each semester and for fulfilling all degree requirements. Although advisors will assist wherever possible, the final responsibility rests with the student. Students are expected to make sure that they are fulfilling all degree requirements, as published in the issue of the catalog of the Judith Herb College of Education under which they entered. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements. Students who have been readmitted to the University are

responsible for the requirements in the University catalog under which they reenter.

Students are strongly encouraged to see an academic advisor at least once a year and as needed for assistance. First-year students should see their advisor each semester. Students must contact the Office of Student Services to schedule an advising appointment.

Students are required to obtain Ohio Department of Education & Workforce required permits prior to beginning classroom experiences and are responsible for all associated expenses. Students are responsible for transportation to their PreK-12 school placements. Placements are completed with our partner schools, within 30 mile radius of campus.

Students are responsible for successfully completing all required licensure assessments prior to applying for licensure and are responsible for all associated expenses. Scores should be reported to the University of Toledo.

## GPA Recalculation for Repeated Courses

Students may apply for grade deletion per the University GPA recalculation policy ([https://www.utoledo.edu/offices/registrar/student\\_records/gpa\\_recalculation.html](https://www.utoledo.edu/offices/registrar/student_records/gpa_recalculation.html)).

## Course Withdrawal

The number of credit hours of Withdrawal (W) is limited to 22 hours for all undergraduate students in degree programs in the Judith Herb College of Education. Once a student has accumulated 22 hours of W, further withdrawals will be counted as Fail (F) in computation of the student's GPA for the purposes of probation or suspension. In addition, students risk the loss of financial aid if they accumulate excessive hours of Withdrawal.

## ACADEMIC HONESTY

Refer to the UToledo Policy web site (<http://www.utoledo.edu/policies/>) for further information on Academic Honesty.

## ACADEMIC APPEAL

Students may appeal an academic decision including an assignment or course grade or other academic decision or action perceived to impede their progress toward completion of the academic program. Appeals dealing with student misconduct are explicitly exempt from this process and shall be dealt with under the relevant University policy and procedures (see UT Policies 3364-30-04).

The student should first verbally discuss the contested grade with the faculty member involved and make reasonable efforts to resolve the issue. If a verbal attempt to resolve the problem fails or the faculty member is unavailable, the student may initiate the Academic Appeal process outlined below.

Academic appeals must be initiated in writing within 20 working days following the receipt of the contested grade. If the faculty member involved is not available during this time period due to University approved leave of absence or for any other reason, the student will initiate the appeal process described in Step 1 and contact the

Department Chair. The Chair will make reasonable efforts to contact the instructor or advisor before proceeding with the appeal process.

No individual may sit in judgement of an appeal or grievance at more than one level of review.

After completing the steps listed below, the Dean's decision may be appealed by either the student or the faculty member to the Student Grievance Council no later than the end of the semester following receipt of the contested grade or decision perceived to impede the student's academic progress.

**Note:** Working days are Monday through Friday not counting holidays when the university is closed.

## Steps Of The Academic Appeal Process

1. The student may initiate the appeal process through a written request for reconsideration to the faculty member involved within 20 working days following the receipt of the contested grade. The appeal should include a statement describing the specific grounds for the appeal and suggested resolution.
2. The faculty member must provide a written response to the student within ten (10) working days of receiving the written request for reconsideration.
3. If no mutually agreeable resolution can be achieved, the student may present in writing their position to the Department Chair within ten (10) working days of completing the previous step. Both the student and the faculty member may provide the Chair with relevant information. The appeal should include a statement describing the specific grounds for the appeal and the written explanation of the decision made by the instructor or advisor involved.
4. The Department Chair will attempt to resolve the case by meeting or otherwise communicating with both the student and the faculty member. If a resolution is not achieved, the Department Chair will provide a written determination within ten (10) working days of receiving the written appeal.
5. If the problem is not resolved at the department level, either party may appeal in writing to the Associate Dean for Undergraduate Education. A written request for a resolution must be made to the Associate Dean within ten (10) working days of the Department Chair's determination. The appeal should include a statement describing the specific grounds for the appeal and the written explanation of the decision made at each level of review.
6. The Associate Dean will attempt to resolve the case by meeting or otherwise communicating with both the student and the faculty member. If a resolution is not achieved, the Associate Dean will call upon the JHCOE Student Appeals and Grievance Committee. Any member of the committee directly involved in the disputed academic decision will be excused from reviewing the case. The committee will review all relevant documentation and may interview the student and faculty member involved. The committee will provide a written recommendation to the associate dean within 15 working days of receiving the appeal.
7. Upon receiving the committee's recommendation, the Associate Dean shall make a recommendation to the Dean. The Dean will issue a

decision within ten (10) working days of receiving the Committee's recommendation.

8. The Dean's decision may be appealed by either the student or the faculty member to the Student Grievance Council no later than the end of the semester following receipt of the contested grade perceived to impede the student's academic progress. See the Academic Grievance policy (UT Policy 3364-71-05) for the procedures that apply beyond the JHCOE.

## Academic Probation

Students with a cumulative GPA of less than 2.0 are automatically placed on probation until a cumulative GPA of 2.0 is achieved. While on probation, it is recommended students enroll for 12 or fewer credit hours. Students on probation must see an adviser.

## Academic Suspension

Academic suspension means the student is prohibited from registering at The University of Toledo for a period of at least one semester. A student is subject to academic suspension if his or her GPA continues to fall below the minimum of 2.0 or if he or she fails to make sufficient progress toward attainment of the degree by accumulating excess W grades. Students may remove Incompletes while under suspension. Refer to the UT Policy web site (<http://www.utoledo.edu/policies/>) for additional information on academic suspension.

## Reinstatement Following Academic Suspension

To be reinstated, the student must submit a written petition to the Associate Dean for reinstatement to their program.

**Readmission:** If a suspended student takes courses at another institution and wishes to petition for readmission to the University following the term of their suspension, then they must successfully petition for readmission and meet the transfer student admission requirements for the degree program in which they wish to continue their studies.

### Reinstatement Process

**Account Holds:** Students must clear all account holds before submitting reinstatement documents.

**Financial Aid:** Students should check their financial aid status and eligibility. Financial aid is a separate process from academic probation or suspension.

**Academic Advising:** Students seeking to be readmitted should meet with their academic advisor to review their academic progress and develop a plan for improving their academic progress prior to submitting the petition for readmission.

### Written Petition for Reinstatement

The student prepares the written petition. The petition is a one-page, professionally written document. The petition must include the following.

- **Student Information:** At the top of the document, clearly list the date of the petition, your name, rocket number, degree program, concentration, and name of your academic advisor.
- **Academic Goals:** In paragraph form, describe your academic goals for pursuing this degree and concentration.
- **Plan for Improving Academic Standing:** In paragraph form, describe the steps you will take to significantly improve your academic performance upon your return to school.
- **Academic Advisor Approval:** Your academic advisor must review and approve the plan described in the petition. Your advisor may also include conditions intended to support your success. If the plan is approved the petition will be signed by the student and the academic advisor.

The petition, signed by both the student and the academic advisor, must be submitted by the student to the Associate Dean. The Associate Dean may request revisions to the plan and conditions prior to approval or denial. Deadline for submission is four weeks prior to the end of the current semester. If acceptable, the student will be reinstated and will be eligible to register for the next academic semester.

**Note:** Undergraduate students who are not able to improve their UT and subject matter GPA to 2.7 or higher will be ineligible to enter professional education and may be ineligible to continue in their degree program in the College.

## Academic Dismissal

Dismissed students are not eligible for readmission to the Judith Herb College of Education. A student may be dismissed for:

- Failing to meet the conditions of readmission after suspension from the Judith Herb College of Education.
- Demonstrating patterns of behavior that are inappropriate for students preparing for educational roles or for failing to meet the professional conduct standard as defined by the state of Ohio.

Regulations for probation, suspension and dismissal apply to both full-time and part-time students. In all matters, the dean's decision is final.

## Admission Policies

### New First Time Students

To be admitted to the Judith Herb College of Education at The University of Toledo, direct-from-high-school students need a minimum cumulative high school grade point average (GPA) of 2.7 or an ACT of 21.

Direct-from-high-school students not qualifying for admission to the Judith Herb College of Education will be admitted to The University of Toledo's Exploratory Studies program which is part of the University College. Students who want to transfer from University College into the Judith Herb College of Education must earn 12 hours of college-level work and be in good academic standing.

## Current University of Toledo Students

Students in good standing with a minimum of 12 graded semester hours who wish to enter the Judith Herb College of Education from another college should meet with an advisor to review their academic record. All program requirements, including the University Core Curriculum, must be fulfilled as specified in the catalog for the year in which the student enters the College. In addition, students with 60 or more credits that will apply to their desired major program must have a minimum GPA of 2.7 for this coursework.

Number of Credit Hours Transferred	Minimum Required GPA
12 to 59	2.5 cumulative UT
60 or more	2.7 cumulative UT and 2.7 in student's major program

## Transfer Students with Credit from Another Institution

Students with satisfactory academic records wishing to transfer into The University of Toledo and the Judith Herb College of Education must meet the minimum entrance requirements of The University of Toledo and should meet with an advisor to review their academic record. All program requirements, including the University Core Curriculum, must be fulfilled as specified in the catalog for the year in which the student enters the College. In addition, transfer students with 60 or more credits that will apply to their desired major program must have a minimum GPA of 2.7 for this coursework.

Students not qualifying for admission to the Judith Herb College of Education will be admitted to The University of Toledo's Exploratory Studies program which is part of the University College. Students who want to transfer from University College into the Judith Herb College of Education must earn 12 hours of college-level work and be in good academic standing.

Number of Credit Hours Transferred	Minimum Required GPA
Less than 60	2.5 overall
60 or more	2.7 overall and 2.7 in student's major program

## Students with an Associate Degree

Students holding associate's degrees from accredited colleges are encouraged to enroll in the College. Students may earn a bachelor's degree upon completion of two or more additional years of full-time study. Students should meet with an advisor in the major to determine a plan of study. The following regulations apply:

1. Students must complete the equivalent of the specified University core.
2. An overall grade point average (GPA) of at least 2.7 on a 4.0 scale in all undergraduate work.
3. In all baccalaureate programs, a minimum of 64 hours must be taken at the 2000 to 4000 levels; of these a minimum of 32 hours must be taken at the 3000 and 4000 levels. Coursework from other institutions is accepted at the level at which the course was taught at that institution.

## Students Applying to the Certificate in Career and Technical Education

In addition to meeting the admission requirements of The University of Toledo and the Judith Herb College of Education, admission to the certificate program requires the following:

- Initial CTE-37 Form from the Ohio Department of Education & Workforce with signatures from the applicant's employing school district without university verification

## STUDENTS APPLYING TO THE CERTIFICATE in CHILD AND YOUTH WORK IN GLOBAL SETTINGS

In addition to meeting the admission requirements of The University of Toledo and the Judith Herb College of Education, admission to the certificate program requires the following:

- All applicants are required to successfully complete an interview process prior to formal application and acceptance into the program.
- Successful applicants will complete an extensive background check to gain access to United States Military bases. A successful interview and a positive background check are required for admittance to the program.
- All applicants must complete 30 credit hours with a minimum 2.5 Higher Education GPA prior departure for service.

## Change of Catalog Year

In some circumstances, students can benefit from program modifications to expedite graduation progress, and may change to the current catalog year from the catalog year under which they were admitted. Important to note, once a catalog year term is updated students may not revert back to previous catalog year term. Interested students should meet with their academic advisor to request a change to the new catalog year.

## Readmission of Former Students

Undergraduate students who discontinue course work for a period of at least one academic year (not including summer) must request readmission to the University. Students who have taken any course work at another institution during the time they have been away from the University (other than transient status), must complete a new application in the Office of Undergraduate Admission and meet transfer admission requirements.

Students who have not taken course work for more than 12 months must comply with the college requirements at the time of readmission. When seeking readmission, students whose grade point average (GPA) is below 2.0 can only be readmitted on approval of the associate dean. Students with a GPA of 2.0 or higher may seek readmission in the College office.

## Honors Program

The Honors Program in the Judith Herb College of Education provides opportunities for challenging and individualized study for undergraduate students of unusually high ability, motivation and initiative. For admission requirements, see Admission to the University Honors Program in the

General Section (<https://catalog.utoledo.edu/general-section/>) of this catalog.

## Degree Requirements

### Credit Hours

Students in bachelor's degree programs must complete a minimum of 120 hours of coursework that includes University Core requirements and all required coursework in the major. Students are encouraged to use Degree Audit to review remaining requirements and meet with their academic advisor before every registration to assess progress toward completion of requirements. If a student completes University Core requirements and required courses in the major in fewer than 120 hours, the student must successfully complete elective courses to meet the total of 120 hours.

Students may qualify for a second bachelor's degree in the College by completing a minimum of 30 credit hours of additional residence course work and by satisfying the applicable bachelor's degree requirements and state requirements.

### Grade Point Average

Students completing degree programs in teacher education must attain a cumulative UT GPA of 2.7 or higher. In addition, students must have a GPA of 2.7 or higher in their subject-matter area courses and professional education courses.

### University Core Curriculum

Students earning bachelor's degrees in Judith Herb College of Education are required to complete the University Core Curriculum. Those courses are distributed in the areas of English composition, mathematics, arts and humanities, social sciences, natural sciences (with lab) and multicultural studies (see the General Section (<https://catalog.utoledo.edu/general-section/>) of this catalog for details). Some programs require courses in these areas over and above those required to fulfill University Core Curriculum requirements. The student's academic department or college office should be contacted for specific details.

### Residency

Students transferring from other institutions must earn at least 30 credit hours in the Judith Herb College of Education at The University of Toledo to be eligible for graduation and/or teacher licensure. Professional Education coursework must be completed in residence for students completing teacher education programs.

### Degree Audit

U.Achieve is an online degree auditing tool available online through the myUT portal Student Self-Service. Students can track their progress toward meeting degree requirement for their declared major. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

### Teacher Education

Initial educator preparation Bachelor of Education degree programs require preparation in pre-professional education, supporting coursework, subject-matter, and professional education including internship.

These requirements are described below. Specific course and other requirements are listed for each degree and concentration on each degree requirement page in this catalog.

**Pre-professional Education:** A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

**Supporting Coursework:** Required courses that may be taken before or after admission to professional education.

**Subject-matter Specialization:** A minimum GPA of 2.7 in the specialization is required.

**Admission to Professional Education:** Admission is required prior to enrolling in Professional Education courses.

- Enrolled as a regular student in a Bachelor of Education degree program with appropriate concentration(s)
- All pre-professional courses completed with a C or higher
- Pre-professional courses GPA of 2.7 or higher
- Subject-matter courses GPA of 2.7 or higher
- Minimum of 48 credits overall and 12 credits in residency at UToledo
- UT GPA of 2.7 or higher

**Professional Education:** Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.

**Internship Eligibility:** The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- All professional courses completed with a C or higher
- Professional education courses GPA >2.7
- Completion of 90% of subject matter specializations
- Subject matter GPA >2.7
- Completion of 100 credits and 30 credits residency at UToledo
- UT GPA >2.7

## Professional Attendance During Field Experience

### Definitions of Field Experience Types

**Practicum.** Practicum is a part-time, semester-long experience. Practicum students are expected to be at their field experience school regularly each week, participating consistently with the same students.

**Internship.** Internship is a fulltime, semester-long experience. Internship students are expected to be at their field experience school each day school is in session and on teacher workdays. Internship students will follow the field experience school's calendar for the beginning and end of day and school breaks. Internship students will attend on-campus professional development days. These are full day sessions. Dates are given to candidates before their internship semester starts.

### Field Experience Schedule

Licensure candidates in both Internships and Practicums will submit a Field Experience Schedule to the College's field experience management system by the end of the first week of the semester. This Field Experience



Schedule will list the dates and times the candidate will be in the field experience school for that semester and will include approximate dates for completing activities assigned by the faculty instructor for the co-requisite, on-campus seminar course as coordinated with their mentor teacher. The Field Experience Office and faculty instructor will verify that the schedule meets requirements for the field experience.

The written Field Experience Schedule will include the following information:

- A copy of the field experience school's calendar with beginning and end of day times and school breaks.
- A calendar listing dates and times the candidate will be in the field experience school.
- Approximate dates for completing assigned activities.

#### Professional Attendance

Licensure candidates are expected to be present and active at their field experience school according to the Field Experience Schedule agreed upon by their mentor teacher and faculty instructor.

Licensure candidates should report to the main office to sign in and out as required, each day they are in their field experience school. Licensure candidates have the responsibility to learn and follow the field experience school's and their specific classroom's policies and procedures. Licensure candidates should be considerate and professional.

#### Missing Time on The Field Experience Schedule

Licensure candidates may need to miss a planned time in their field experience due to illness or other personal matters that require immediate attention. Licensure candidates must notify their mentor teacher and field supervisor as far in advance as possible if they will be late or absent for a field experience session. If possible, the licensure candidate will provide substitute teaching plans or copies of planned activities for any missed field experience sessions. If completing the requirements of the field experience as outlined in the Field Experience Schedule for the semester is in jeopardy due to attendance, the field supervisor will notify the Office of Field Experiences.

#### Religious Accommodations

Consistent with the University policy on religious accommodations (UToledo policy 3364-71-30.01), licensure candidates may schedule up to three days away from their field experience school. These dates must be indicated on the candidate's Field Experience Schedule submitted at the beginning of the semester. In addition, the candidate should also submit the Religious Accommodations Request Form (<https://forms.office.com/r/gBBCqkQj3H/>) required by the University.

#### Substitute Teaching

Opportunities to substitute teach cannot conflict with the licensure candidate's Field Experience Schedule. If the licensure candidate substitute teaches, those events cannot be considered part of the licensure candidate's field experience and will be at the sole discretion of the employing school district.

## Unsatisfactory Performance in a Field Experience

Licensure candidates in the Judith Herb College of Education may be determined to have made an unsatisfactory performance in an internship or practicum experience. Reasons for recording an unsatisfactory performance include, but are not limited to, the following:

- Grade of U (unsatisfactory) for the Internship
- Grade of W (withdrawal) for the Internship when concerns regarding performance have been documented.
  - Unprofessional attendance or preparedness.
  - Unprofessional dispositions or behaviors as described in the College's disposition and behavior referral policy.
  - Concerns regarding professional performance *at the level appropriate for the experience* documented by the mentor teacher, field supervisor, or faculty instructor.

Depending on the nature of the concern(s), the student may be removed from the field experience by the Field Experience Coordinator before the end of the semester.

## Repeating a Field Experience Internship

Internship may be repeated only once. Students who have an unsatisfactory performance must repeat the Internship experience within the next two terms, not including summer. Before scheduling a second attempt, the Field Experience Coordinator will consult with the field supervisor and faculty instructor to develop an Action Plan for correcting the concerns noted during the first experience. This Action Plan should be in writing and describe the deficiencies, remedies for each deficiency, and a timeline for addressing each component.

When repeating an internship, a co-requisite, on-campus seminar will also be required but may be completed as pass/fail if a passing grade (C or higher) has already been recorded for the original co-requisite seminar.

Unsatisfactory performance on the second internship experience (or failure to enroll for the second attempt) in any program disqualifies the student from any licensure preparation program in the College.

#### Practicum

Each practicum may be repeated only once. Students who have an unsatisfactory performance must repeat that practicum experience within the next two terms, not including summer. In the interim between experiences, the Field Experience Coordinator should consult with the field supervisor and faculty instructor to develop an Action Plan for correcting the concerns noted during the first experience. This Action Plan should be in writing and describe the deficiencies, remedies for each deficiency, and a timeline for addressing each component prior to scheduling the second attempt.

When repeating a practicum, a co-requisite, on-campus seminar will also be required but may be completed as pass/fail if a passing grade (C or higher) has already been recorded for the original co-requisite seminar. If the second attempt is satisfactory, the student may continue in the program without prejudice.

Unsatisfactory performance on the second attempt for that practicum experience (or failure to enroll for the second attempt) disqualifies the student from licensure preparation in that program concentration. The student may, however, apply for admission to another licensure program concentration in the College.

### Denial of Opportunity to Repeat a Field Experience

In some cases, the opportunity to repeat the internship or practicum experience may be denied and the student will be disqualified from any licensure preparation program in the College.

Reasons for denying a repeated internship or practicum experience include, but are not limited to the following:

- Performances that place PK-12 students at risk academically, mentally, or physically
- Conduct that is unprofessional as described in the Licensure Code of Professional Conduct for Ohio Educators
- Revocation of pre-service teacher permit or notification of concern from Ohio Department of Education
- Dishonest or unethical actions

## Professional Conduct

Verification of professional conduct as stipulated by the state of Ohio is required. Students will not be allowed to continue in a teacher education major or participate in a field experience if they have pleaded guilty to, have been found guilty of, or have been convicted of a criminal offense listed in R.C. 3319.31 or R.C. 3319.39. Students should refer to a list of the rules and statutes in the Ohio Revised Code and the Ohio Administrative Code that are applied by the Office of Professional Conduct at the Ohio Department of Education. All rules and statutes listed will result in removal from all teacher education programs.

## Licensure Requirements

### Ohio Educator License

To be eligible for an Ohio Educator License or Licensure Endorsement, students must complete an educator preparation program and fulfill all requirements of the Ohio Department of Education for the educator license or endorsement they are seeking.

### Field Experience: Practicum and Internship

Candidates for an initial Ohio Educator License must complete field experiences (i.e. practicum and internship) in the subject matter and grade band associated with the educator license or endorsement they are seeking. The Office of Field Experience makes all school placements in keeping with the best learning situation for the individual student.

Students must be eligible for field experiences in PK-12 schools as outlined by the program and the State of Ohio. Students are required to obtain Ohio Department of Education & Workforce required permits prior to beginning field experiences and are responsible for all associated expenses.

#### Licensure Assessments

All students completing a teacher licensure preparation program at The University of Toledo are required to complete a series of licensure assessments. These exams have been approved by the Ohio Department of Education and CAEP. The required tests are listed below:

### Ohio Assessments for Educators (OAE)

The State of Ohio has adopted a series of licensure assessments that all teacher education students must satisfactorily complete in order to be recommended for licensure. Based on the licensure type, OAE test are required for content knowledge, pedagogical knowledge, and foundations of reading. Students are required to register for these assessments and to pay all assessments fees. Information about assessments, testing dates and location, preparation, and passing scores may be found online (<https://www.oh.nesinc.com/>) and in the Office of Student Services.

### edTPA

Teacher education students must submit to edTPA and pay all assessments fees. This assessment is submitted during the internship semester. Information about the assessment, passing scores, and options for retaking the edTPA may be found online (<https://www.edtpa.com/>) (<https://www.oh.nesinc.com/>) and in the Office of Student Services.

### Performance Assessments

Performance assessments will be used throughout the program to evaluate students' performance and to provide information on the quality of the program.

## Recommendation for Licensure

Licensure to teach in the fields selected is made only upon the recommendation of the dean of the Judith Herb College of Education. The dean or dean's designee will recommend licensure to the Ohio State Department of Education only in the teaching fields in which the student meets all requirements as defined in this catalog.

## Student Services

### Academic Advising

The Office of Student Services in the Judith Herb College of Education coordinates academic advising. The office's mission is to provide quality, timely and comprehensive student services that will enhance student success in achieving academic goals. Although the ultimate responsibility for making personal and educational decisions rests with the student, his/her potential for academic success can improve considerably through relationships with the college's advisors, who can provide assistance in identifying educational options and enhancing student potential.

Each student in the Judith Herb College of Education is assigned an academic advisor to support them in degree requirements, career opportunities, and interpretations of college and University policies and procedures. Advising is through appointment only. Please call 419.530.2495 for an appointment.

Kristina Amos-Perry, secretary  
Gillham Hall Room 3100  
Phone: 419.530.2495

Email: JHCOEAdvising@utoledo.edu (JHCOEAdvising@utoledo.edu)

Lindsey Baumgartner, academic advisor  
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Melissa Spann, academic advisor/enrollment specialist  
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## Department of Educational Studies

Snejana Slantcheva-Durst, chair  
Gillham Hall Room 1000G  
Phone: 419.530.5673  
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The Department of Educational Studies prepares and develops educational leaders and scholars to be agents of transformation in all levels of educational systems. The department offers master's and doctoral degrees in educational administration and supervision, educational psychology, educational technology, higher education, research and measurement, and social foundations of education (including philosophy, sociology, and history of education). The department provides a minor in peace studies, along with foundation and support courses for the undergraduate licensure programs.

## Undergraduate Certificate

Certificate in Child and Youth Work in Global Settings (p. 573)

- Experiential learning program providing educational development and recreational programming for the United States Army's children and youth in Europe

## Minors in Education

Peace Studies Minor (p. 573)

- This interdisciplinary academic minor is open to students in all degree programs

### EDP 3200 Applied Psychology For Teachers

[3 credit hours]

Examination of the ways in which psychological principles can be applied to the planning and implementation of meaningful instruction in elementary and secondary classrooms.

**Term Offered:** Spring, Summer, Fall

### EDP 3210 Child Development For Early Childhood Educators

[3 credit hours]

Students in early childhood education will be introduced to emotional, social and cognitive factors in child development (birth to age eight) and examine how teachers can create optimal environments for students.

**Term Offered:** Spring, Summer, Fall

### EDP 3290 Life Span Development

[3 credit hours]

This course will examine concepts delineating the physical (including genetic influences), cognitive, social and personality development across the life span. The course is designed to provide a necessary background in the concepts of development as they pertain to a life span orientation for students in special education. An emphasis will be placed on the application of developmental data issues and problems extant in working with special populations.

**Term Offered:** Fall

### EDP 4220 Adolescent Behavior And Development

[3 credit hours]

Examines the physical, cognitive, social, emotional and personality development of adolescents. Provides helping professionals with background to identify and solve problems related to adolescent growth and development.

**Term Offered:** Spring, Summer, Fall

### EDP 4240 Classroom Engagement and Behavioral Supports

[3 credit hours]

The course builds teacher candidate's knowledge of social and emotional development and needs from birth to age 11. Teacher candidates develop skills to develop support positive classroom dynamics, prosocial behaviors and classroom management. The course addresses theory and practical application of current behavioral support approaches as well as the evolution of the field across time. Special attention will be paid to current best practice as it applies to the primary classroom.

**Term Offered:** Spring, Summer, Fall

### EDP 4990 Independent Study In Educational Psychology

[1-3 credit hours]

]Directed study of a current topic in educational psychology. The student meets with the instructor at arranged intervals without formal classes.

**Term Offered:** Spring, Fall

### EDU 1000 Orientation To Education

[1 credit hour]

Academic and student development course offering an introduction to College and University community. Offers strategies for successful transition to University environment by examining University resources, procedures, academic programs and advising.

**Term Offered:** Fall

### EDU 1010 Leadership and Best Practices in Child and Youth Programming

[3 credit hours]

This course is a practical exploration of the principles, methods, procedures, and skills needed for the development and implementation of child and/or youth programs. Students will be prepared to intern in an established child and/or youth development program upon completion of the course.

**Term Offered:** Spring, Summer, Fall

**EDU 1020 Studies in Child and Youth Learning and Development**

[3 credit hours]

This course is an introductory exploration of the content and context associated with an established early childhood and/or youth development program. This course includes practice in modern teaching procedures, construction and use of classroom instructional materials, analysis of the teaching learning process, meeting the needs of diverse learners, classroom supervision, and community relations.

**Prerequisites:** EDU 1010 with a minimum grade of D- or CYS 1010 with a minimum grade of D-

**Corequisites:** EDU 1030

**Term Offered:** Spring, Summer, Fall

**EDU 1030 Practicum in Child Development Centers / Youth Services Forums**

[6 credit hours]

This course is a supervised leadership experience within a child and/or youth development internship program. Students who complete this course are prepared to work with children and/or youth in a variety of educational and non-educational domestic and international settings. Practical field-based assignments encourage students to reflect upon their experience as part of the development of interpersonal, cross-cultural, and leadership skills.

**Prerequisites:** EDU 1010 (may be taken concurrently) with a minimum grade of D- or CYS 1010 (may be taken concurrently) with a minimum grade of D-

**Corequisites:** EDU 1020

**Term Offered:** Spring, Summer, Fall

**EDU 1700 Introduction to Education**

[3 credit hours]

Exploration of purposes of schools in society, focusing on professionalism, standards & accountability, education for democracy, legal & organizational issues, diversity, and curriculum & instruction, as well as knowledge and dispositions required to be an effective teacher.

**Term Offered:** Spring, Fall

**EDU 4700 Honors Capstone Practicum**

[1-3 credit hours]

Capstone Practicum is an individualized applied learning experience. Faculty engage in a collaborative mentoring relationship with the student to establish an Honors Capstone Plan. The student assumes responsibility for learning in a self-directed manner without the structure provided by the typical classroom course.

**Term Offered:** Spring, Fall

**ETPT 2020 Technology And Multimedia In Educational Environments**

[3 credit hours]

Emphasizes the development of computing skills with a focus on productivity tools in organizing, managing, multimedia authoring, homepage development, software evaluation and presenting lessons for professional communication in K-12.

**Term Offered:** Spring, Fall

**PJS 1000 Introduction to Peace and Justice Studies**

[3 credit hours]

This survey course provides an overview to fundamental peace knowledge: theories of peace, ethics, violence, conflict and change in the context of historical and 21st century issues and events.

**Term Offered:** Spring, Fall

Core Social Sciences

**PJS 2000 Nonviolence and Conflict Transformation Theory and Practice**

[3 credit hours]

This course provides an overview of theories and principles of nonviolence, ethics of conflict, and conflict transformation; it engages students in the application of practical methods and skills of peacebuilding through the lenses of these theories and principles.

Core Arts & Humanities

**PJS 2500 Peace Education Facilitating Learning for Change in Schools and Beyond**

[3 credit hours]

The purpose of this course is to introduce the basic concepts, theories, and approaches to peace education. The course explores the theories of peace education, including pedagogical approaches to peace-learning for formal, informal, and non-formal learning settings. The course also introduces the substantive areas of peace education.

**Prerequisites:** PJS 1000 with a minimum grade of D- and PJS 2000 with a minimum grade of D-

**Term Offered:** Spring, Fall

**PJS 3000 Peace Lab Issues and Practices in Peace**

[3 credit hours]

Peace Lab is an experiential, issue-focused laboratory that introduces students to practical skills of research or program design for applied peacebuilding in a variety of settings. The project developed by the student is informed by and demonstrates understanding of their core peace studies knowledge. Students present their projects to the public in a scholarly fair/ conference organized by the course.

**Prerequisites:** PJS 1000 with a minimum grade of D- and PJS 2000 with a minimum grade of D- and PJS 2500 with a minimum grade of D-

**PJS 4000 Senior Capstone Seminar**

[3 credit hours]

The Capstone Seminar provides the opportunity for the student to develop a formal, independent study culminating in a written discourse that advances our understanding of peace studies or a formal, independent project applying principles of peace studies to analyze a particular problem and culminating in a written discourse. The course builds on the work projects formulated in the Peace Lab (PJS 3000).

**Prerequisites:** PJS 1000 with a minimum grade of D- and PJS 2000 with a minimum grade of D- and PJS 2500 with a minimum grade of D- and PJS 3000 with a minimum grade of D-

**RESM 4100 Educational Statistics**

[3 credit hours]

Introduction to major concepts of statistical description; central tendency, dispersion, and relative position and relationship. Inferential methods such as t-tests, one-way analysis of variance and multiple comparisons are also presented.

**Term Offered:** Spring, Summer, Fall

**RESM 4200 Classroom Assessment**

[3 credit hours]

This course familiarizes preservice teachers with concepts and principles of classroom assessment. It examines formal and informal strategies for assessing student achievement and explores conceptual and practical issues in assessment and grading.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Spring, Fall

**TSOC 2000 Diversity In Contemporary Society**

[3 credit hours]

This course analyzes the roles of people in a culturally diverse society through an exploration of issues of race, class, gender, ethnicity and disability.

**Term Offered:** Spring, Summer, Fall  
Multicultural US Diversity

**TSOC 3000 Schooling And Democratic Society**

[3 credit hours]

The evolving role of education in the US, including the historical and contemporary relationship of schooling to other educational institutions, groups of people and the process of social change.

**Term Offered:** Spring, Summer, Fall

**TSOC 4990 Independent Study In Educational Theory**

[1-4 credit hours]

Directed study of a current topic in educational theory and social foundations. The student meets with the instructor at arranged intervals without formal classes.

**Term Offered:** Spring, Summer, Fall

## Child and Youth Work in Global Settings Certificate

Rocket Kids is an experiential learning program providing educational development and recreational programming to the United States Army's children and youth in Europe. Rocket Kids interns are able to participate in a fall, spring or summer term and provide services to our U.S. military youth while experiencing the world in locations such as Germany, Italy, Belgium, and Netherlands.

### Admission Requirements

In addition to meeting the admission requirements of The University of Toledo and the Judith Herb College of Education, admission to the certificate program requires the following:

- All applicants are required to successfully complete an interview process prior to formal application and acceptance into the program.
- Successful applicants will complete an extensive background check to gain access to United States Military bases. A successful interview and a positive background check are required for admittance to the program.
- All applicants must complete 30 credit hours with a minimum 2.5 Higher Education GPA prior departure for service.

Code	Title	Hours
EDU 1010	Leadership and Best Practices in Child and Youth Programming	3
EDU 1020	Studies in Child and Youth Learning and Development	3
EDU 1030	Practicum in Child Development Centers / Youth Services Forums	6
<b>Total Hours</b>		<b>12</b>

- The culminating learning outcome is certificate completers will be able to: implement age and culturally appropriate curriculum within the child and/or youth program.

- 1) Apply critical thinking skills towards evaluating Child Development Center and Youth Services personnel requirements and abilities.
- 2) Integrate knowledge of early childhood and/or youth development theories, principles, and concepts into programming for children and youth.
- 3) Explore and interpret the broader impact that Child Development Center and Youth Services programs and services have on military community populations.
- 4) Design and implement a professional plan that will result in personal and social growth.
- 5) Develop global competence through through cross cultural opportunities and experiences.
- 6) Evaluate differences and similarities between student's background and host location's cultural and social contexts, and an understanding of the various elements and facets of the sponsoring organization's culture and that of the host location.

## Peace Studies Minor

Peace Studies is an interdisciplinary academic minor concerned with inquiry and scholarship regarding reduction and elimination of violence and the establishment of conditions for the possibility of peace and justice to flourish at all levels of human organizations.

Code	Title	Hours
<b>Core Courses</b>		
PJS 1000	Introduction to Peace and Justice Studies	3
PJS 2000	Nonviolence and Conflict Transformation Theory and Practice	3
PJS 2500	Peace Education Facilitating Learning for Change in Schools and Beyond	3
PJS 3000	Peace Lab Issues and Practices in Peace	3
<b>Elective Courses</b>		
Select six credits <sup>1</sup>		6
<b>Total Hours</b>		<b>18</b>

<sup>1</sup> Electives are available in disciplines and programs across campus including: art, communications, disability studies, economics, environmental studies, foundations of education, legal specialties, philosophy, religious studies, sociology/anthropology, and womans & gender studies.

## Department of Teacher Education

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The Department of Teacher Education is a vibrant, diverse community of students and faculty members interested in studying issues of teaching, learning and learning to teach in primary, middle, and secondary classrooms. Programs which lead to educator licensure meet all state of Ohio, national professional associations and the Council for the Accreditation of Educator Programs (CAEP) standards for



program accreditation and initial professional licensure. Students who successfully complete all degree and licensure requirements will be recommended for an educator license in Ohio.

Students who intend to be teachers can expect to spend extensive amounts of time in schools and community agencies as they progress through required professional courses and internship experiences. Introductory courses and exploratory seminars offered to students in pre-professional education may include school-based experiences. Students will be required to assemble portfolio evidence of experience as they progress through their programs.

## Bachelor of Education

Bachelor of Education in Adolescent and Young Adult Education (p. 582)

- Initial educator preparation for an Ohio educator license in Adolescent and Young Adult Education (ages 12-21/grades 7-12) in one of the following areas: Chemistry, Earth and Space Science, Integrated Language Arts, Integrated Mathematics, Integrated Science, Integrated Social Studies, Life Science, and Physics

Bachelor of Education in Early Childhood Education (p. 599)

- Initial educator preparation for an Ohio educator license in Primary Education (ages 3-10/grades PreK-5)

Bachelor of Education in Middle Childhood Education (p. 601)

- Initial educator preparation for an Ohio educator license in Middle Childhood Education (ages 8-14/grades 4-9) in two of the following areas: Reading and Language Arts, Mathematics, Science, and Social Studies

Bachelor of Education in Multi-Age Education (p. 604)

- Initial educator preparation for an Ohio educator license in Multi-age Education (ages 3-21/grades PreK-12) in one of the following areas: Art, Music, and Spanish

Bachelor of Education in Special Education (p. 614)

- Initial educator preparation for an Ohio educator license in Intervention Specialist (ages 5-21/grades K-12) in one of the following areas: Mild/Moderate Special Needs and Moderate/Intensive Special Needs

## Undergraduate Certificate

Certificate in Career and Technical Education (<https://catalog.utoledo.edu/undergraduate/judith-herb-education/department-teacher-education/career-technical-education-certificate/>)

- Initial educator preparation for an Ohio educator license for teaching in an approved career-tech workforce development program

### CI 3400 Foundations of Literacy

[3 credit hours]

An introduction to contemporary literacy instruction to (a) develop a deep understanding of the central role literacy plays in education, (b) understand the theoretical and evidence-based foundations of reading and writing processes and instruction and, (c) develop awareness, understanding, respect, and a valuing of differences in our society as they relate to literacy instruction. Issues related specifically to the needs of English Language Learners and learners with dyslexia introduced.

**Term Offered:** Spring, Summer, Fall

### CI 3430 Phonics And Word Identification

[3 credit hours]

Phonological and morphological underpinnings of English spelling, reading disabilities such as dyslexia, sound awareness in spoken language examined—instructional approaches for assessing and teaching phonics, word recognition, and vocabulary introduced. Extensive use of case study data included. The course will examine current evidence-based literacy practices that align with the Science of Reading.

**Prerequisites:** CI 3400 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### CI 3460 Literacy And Reading Development For Young Children

[3 credit hours]

An examination of professional standards for literacy/language arts with specific attention to diverse learners preK through grade 3. Developmentally-appropriate classroom design and methods including Readers' and Writers' Workshop, Guided Reading, Interactive Read Alouds, Interactive Writing, and Integrated Inquiry. Attention to instructional and cognitive strategies as well as reading-writing connections and oral language development.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Spring, Fall

### CI 4050 Teaching Methods in Middle Grades English Language Arts

[3 credit hours]

In-depth study of the methods, standards and materials for teaching middle grades English Language Arts.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4320 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring

### CI 4060 Teaching Methods in Middle Grades Mathematics

[3 credit hours]

In-depth study of the methods, standards and materials for teaching middle mathematics.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4320 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring

**CI 4070 Teaching Methods in Middle Grades Science**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching middle grades science.

**Prerequisites:** CI 4190 with a minimum grade of D- and CI 4680 with a minimum grade of D- and Upper Division with a score of 1 and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring

**CI 4080 Teaching Methods in Middle Grades Social Studies**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching middle grades social studies.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4720 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring

**CI 4110 Developing Instruction for Middle Grades 4-5 Literacy and Social Studies**

[3 credit hours]

A course in pedagogy and content for pre-service teachers currently working on Ohio's Early Childhood PK-3 licensure program and licensed teachers who have completed Ohio's Early Childhood PK-3 licensure program and are seeking to extend their license to be eligible to teach all content in grades four and five. The course will focus on the English language arts and social studies as outlined in the Ohio Academic Content Standards.

**Term Offered:** Spring, Fall

**CI 4120 Developing Instruction in Mathematics and Science for Grades 4-5**

[3 credit hours]

A course in pedagogy and content for pre-service teachers currently working on Ohio's Early Childhood PK-3 licensure program and licensed teachers who have completed Ohio's Early Childhood PK-3 licensure program and are seeking to extend their license to be eligible to teach all content in grades four and five. The course will focus on mathematics and science as outlined in the Ohio Academic Content Standards.

**Term Offered:** Spring, Fall

**CI 4140 Teaching Methods For Foreign Languages**

[3 credit hours]

Consideration of current theory and practice in teaching foreign languages in elementary and secondary schools. Focus on planning instruction, materials selection and methods for teaching communication skills and culture.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Spring, Fall

**CI 4150 Methods of Teaching AYA English Language Arts**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching English Language Arts at the secondary level.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4320 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring, Fall

**CI 4160 Methods of Teaching AYA Mathematics**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching mathematics at the secondary level.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4550 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring, Fall

**CI 4170 Methods of Teaching AYA Science**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching science at the secondary level.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4680 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring, Fall

**CI 4180 Methods of Teaching AYA Social Studies**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching social studies at the secondary level.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4720 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring, Fall

**CI 4190 Practicum I**

[1 credit hour]

Teacher candidates will be immersed in a classroom studying the student as a learner of content and the classroom as community. Teacher candidate will co-teach lessons and independently teach two or more lessons.

**Prerequisites:** (CI 4320 (may be taken concurrently) or CI 4680 (may be taken concurrently) or CI 4720 (may be taken concurrently) or CI 4550 (may be taken concurrently)) and Upper Division with a score of 1

**Term Offered:** Spring, Fall

**CI 4210 Advanced Teaching Methods in Middle Grades English Language Arts**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in middle grades English language arts.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4050 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Fall

**CI 4220 Advanced Teaching Methods in Middle Grades Mathematics**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in middle mathematics.

**Prerequisites:** CI 4060 with a minimum grade of C and CI 4290 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Fall

**CI 4230 Advanced Teaching Methods in Middle Grades Science**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in middle science.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4070 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Fall

**CI 4240 Advanced Teaching Methods in Middle Grades Social Studies**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in middle grades social studies.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4080 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Fall

**CI 4250 Advanced Methods of Teaching AYA English Language Arts**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in secondary English language arts.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4150 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Spring, Fall

**CI 4260 Advanced Methods of Teaching AYA Mathematics**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in secondary mathematics.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4160 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Spring, Fall

**CI 4270 Advanced Methods of Teaching AYA Science**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in secondary science.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4170 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Spring, Fall

**CI 4280 Advanced Methods of Teaching AYA Social Studies**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in secondary social studies.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4180 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Spring, Fall

**CI 4290 Practicum II**

[1 credit hour]

Teacher candidates will continue field placement studying the role of the teacher and community in learning as well as a variety of students. Teacher candidate will co-teach lessons and independently teach two small units of study.

**Prerequisites:** CI 4190 with a minimum grade of C and Upper Division with a score of 1 and (CI 4050 (may be taken concurrently) or CI 4060 (may be taken concurrently) or CI 4070 (may be taken concurrently) or CI 4080 (may be taken concurrently) or CI 4150 (may be taken concurrently) or CI 4160 (may be taken concurrently) or CI 4170 (may be taken concurrently) or CI 4180 (may be taken concurrently))

**Term Offered:** Spring

**CI 4300 Literature For Children**

[3 credit hours]

Emphasis on all genres of literature for children, including poetry, traditional literature, fantasy, realistic fiction, biography and other information books, particularly for early childhood and middle grades learners. Instructional strategies for engaging learners with children's literature and ways of increasing home-school connections through use of children's literature also introduced.

**Term Offered:** Spring

**CI 4320 Literature For Young Adults**

[3 credit hours]

Survey of literature materials written for the junior and senior high school student. Emphasis is placed on all genres, literary elements and the use of literature across the curriculum.

**Prerequisites:** Upper Division with a score of 1 and CI 4190 (may be taken concurrently)

**Term Offered:** Spring, Fall

**CI 4390 Practicum III**

[1 credit hour]

Candidate will be placed in their student teaching site(s) and focus on developing and teaching instructional unit(s) in their licensure area(s) with a focus on the role of assessment throughout the planning-teaching-reflection process.

**Prerequisites:** CI 4290 with a minimum grade of C and Upper Division with a score of 1 and (CI 4210 (may be taken concurrently) or CI 4220 (may be taken concurrently) or CI 4230 (may be taken concurrently) or CI 4240 (may be taken concurrently) or CI 4250 (may be taken concurrently) or CI 4260 (may be taken concurrently) or CI 4270 (may be taken concurrently) or CI 4280 (may be taken concurrently))

**Term Offered:** Fall

**CI 4400 Reading In Middle Grades**

[3 credit hours]

Using various genres of literature, students focus on instructional approaches across the curriculum for supporting middle grades students to become literate in multiple subject domains. Teaching methods to support comprehension of text-based content-area materials and writing across the curriculum emphasized. Attention to instructional and cognitive strategies as well as reading-writing connections and oral language development.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Spring, Fall



**CI 4470 Literacy Assessment and Remediation**

[3 credit hours]

Examine current literacy practices in assessment and remediation. Emphasis on knowledge and skill needed to diagnose and assess students in reading and writing by working with an at-risk learner in a public school setting. Apply word identification, comprehension, fluency, vocabulary and writing instructional strategies for supporting readers in an experiential learning environment.

**Prerequisites:** CI 3430 with a minimum grade of D- or CI 3440 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**CI 4490 Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach**

[3 credit hours]

Study of the integration of reading comprehension, writing, oral language and word skill development in content reading. Attention will be given to instructional methods as well as assessment practices.

**Term Offered:** Spring, Summer, Fall

**CI 4510 Mathematics For The Young Child**

[3 credit hours]

Development of mathematical understanding in young children, appropriate learning and assessment experiences and analysis of curriculum. Mathematical focus on place value, number sense, geometry, measurement, algebra, data analysis and probability.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Spring, Fall

**CI 4550 Teaching Problem Solving In Mathematics**

[3 credit hours]

Focuses on the art of problem solving and its implementation in the classroom. Basic problem solving strategies are developed; materials and methods for their integration in mathematics teaching are provided.

**Prerequisites:** Upper Division with a score of 1 and CI 4190 (may be taken concurrently)

**Term Offered:** Fall

**CI 4680 The Nature of Science**

[3 credit hours]

This course focuses on nature of science education as to teaching science and is designed for pre-service teachers.

**Prerequisites:** CI 4190 (may be taken concurrently) and Upper Division with a score of 1

**Term Offered:** Spring, Fall

**CI 4720 Best Practices for Teaching Social Studies**

[3 credit hours]

An introduction to lesson planning, pedagogy, and how these principles relate to the Social Studies classroom.

**Prerequisites:** Upper Division with a score of 1 and CI 4190 (may be taken concurrently)

**Term Offered:** Spring, Fall

**CI 4730 Seminar Managing the English Language Arts Classroom**

[3 credit hours]

A professional teaching and reflection seminar that places internship experience in the context of issues in English language arts education including Ohio mandates for practicing teachers, classroom management, diverse learners and learning environments, and professional portfolio development.

**Prerequisites:** CI 4390 with a minimum grade of C and CI 4250 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4930

**Term Offered:** Spring

**CI 4740 Seminar: Managing the Mathematics Classroom**

[3 credit hours]

A professional teaching and reflection seminar that places internship experience in the context of issues in mathematics education including Ohio mandates for practicing teachers, classroom management, diverse learners and learning environments, and professional portfolio development.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4260 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4930

**Term Offered:** Spring

**CI 4760 Seminar: Managing the Science Classroom**

[3 credit hours]

A professional teaching and reflection seminar that places internship experience in the context of issues in science education including Ohio mandates for practicing teachers, classroom management, diverse learners and learning environments, and professional portfolio development.

**Prerequisites:** CI 4390 with a minimum grade of C and CI 4270 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4930

**Term Offered:** Spring

**CI 4790 Seminar: Managing the Social Studies Classroom**

[3 credit hours]

A professional teaching and reflection seminar that places internship experience in the context of issues in Social Studies education including Ohio mandates for practicing teachers, classroom management, diverse learners and learning environments, and professional portfolio development.

**Prerequisites:** Upper Division with a score of 1 and CI 4390 with a minimum grade of C and CI 4280 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4930

**Term Offered:** Spring

**CI 4930 Internship/Student Teaching**

[9 credit hours]

Full-time supervised classroom teaching for 15 weeks. The candidate will be placed in their student teaching site(s) and will focus on developing and teaching instructional unit(s) with a focus on the role of assessment throughout the planning-teaching-reflection process.

**Prerequisites:** Upper Division with a score of 1 and CI 4390 with a minimum grade of C and (CI 4740 (may be taken concurrently) with a minimum grade of D- or CI 4760 (may be taken concurrently) with a minimum grade of D- or CI 4790 (may be taken concurrently) with a minimum grade of D-)

**Term Offered:** Spring, Fall

**CI 4980 Special Topics In Curriculum And Instruction**

[1-5 credit hours]

Topics of interest and concern to preservice, inservice and non-degree teachers within school districts and community agencies. The course may be included in an undergraduate degree program.

**Term Offered:** Spring, Summer, Fall**CI 4990 Undergraduate Independent Study In Curriculum And Instruction**

[1-5 credit hours]

Provides student the opportunity to work individually on professional problems under the direction of faculty in Curriculum and Instruction.

**Term Offered:** Spring, Summer, Fall**CIEC 3200 Early Childhood Education: Philosophy And Practice**

[3 credit hours]

The course emphasizes the role, attitude and characteristics of the effective teacher of young children.

**Term Offered:** Spring, Summer, Fall**CIEC 3350 Child, Family & Public Policy In Early Childhood**

[3 credit hours]

This course is designed to establish awareness of public policy issues and advocacy techniques, knowledge of family systems, effective home/school communication and collaborative procedures.

**Term Offered:** Spring, Summer, Fall**CIEC 3380 Practicum I**

[1 credit hour]

This course is designed to explore the socio-cultural context of the school, family and community as important influences in learning. Students will be assigned to work with a family, gather data and information about their field sites and attend IEP and IFSP conferences.

**Prerequisites:** Upper Division with a score of 1**Corequisites:** CIEC 4070**Term Offered:** Fall**CIEC 3700 Early Literacy, Language, and Social Studies**

[9 credit hours]

This 9 semester-hour course is required for the "Fast-Track" non-licensure program in Early Childhood Education and provides an integrated study of social studies and literacy development and instructional practices in early childhood education.

**Prerequisites:** CIEC 3600 with a minimum grade of C and CIEC 3610 with a minimum grade of C**Corequisites:** CIEC 3710**Term Offered:** Spring**CIEC 3710 Field Early Literacy, Language and Social Studies**

[7 credit hours]

Students complete 280 clock hours of field experience in their ECE setting that focuses on their ability to design, manage and evaluate learning environments and activities related to the learning of the literacy and social studies for young children. This field experience is part of the non-licensure "Fast-Track" ECE program.

**Prerequisites:** CIEC 3600 with a minimum grade of C and CIEC 3610 with a minimum grade of C**Corequisites:** CIEC 3700**Term Offered:** Spring**CIEC 4070 Effective Teaching Practices, Pre-K To 3rd Grade**

[3 credit hours]

This course is designed to apply characteristics of best practice to curriculum development and implementation with adherence to the national and state curriculum standards as they apply to children, age 3 to 8, with diverse educational needs.

**Prerequisites:** Upper Division with a score of 1 and CIEC 3200 with a minimum grade of C and CIEC 4340 with a minimum grade of C**Corequisites:** CIEC 3380**Term Offered:** Spring, Fall**CIEC 4340 Infant/Toddler Curriculum**

[3 credit hours]

Sequential development of the young child from birth to 3 years. Taken in conjunction with placement in early childhood setting, permitting opportunities to participate in the caregiving of infants/toddlers.

**Term Offered:** Spring, Summer, Fall**CIEC 4460 Science Methods For Early Childhood Education**

[3 credit hours]

This course is designed to help teachers of science in grades Pre-Kindergarten through third to understand the concepts, ideas and applications of science in the real world. Students will learn how scientific thinking involves collecting data, analyzing data, making decisions and taking action based on those decisions. Students will learn how to plan effective science experience for young children that cause them to explore environments and act upon their discoveries. Students will learn how to assess the scientific thinking of young children appropriately, using formal and informal strategies.

**Corequisites:** CIEC 4480**Term Offered:** Spring, Fall**CIEC 4480 Practicum II**

[1 credit hour]

This course aligns with all Cohort I coursework in the undergraduate Early Childhood Teacher Licensure Program.

**Prerequisites:** Upper Division with a score of 1 and CIEC 3380 with a minimum grade of C**Corequisites:** CIEC 4460**Term Offered:** Spring**CIEC 4550 Teaching Methods For Early Childhood Social Studies**

[3 credit hours]

In depth study of methods and materials for teaching social studies from pre-school to third grade. Implementation of early childhood curriculum with the context of current technology and the development of critical thinking skills.

**Prerequisites:** (CIEC 3200 with a minimum grade of C and EDP 3210 with a minimum grade of C)**Term Offered:** Spring, Fall**CIEC 4750 Developmental Assessment In Early Childhood**

[3 credit hours]

This course focuses on methods of assessment in early childhood classrooms. Issues covered include methods of observation, interpreting formal assessment results and using information gained from assessment to plan curriculum.

**Term Offered:** Spring, Fall

**CIEC 4770 Practicum III**

[1 credit hour]

Practicum experience in primary grade settings (grades K-3) where students will observe, plan, implement and evaluate activities.

**Prerequisites:** CIEC 4480 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CIEC 4550

**Term Offered:** Fall

**CIEC 4900 Internship/Student Teaching Seminar**

[3 credit hours]

A seminar designed to reflect on the student teaching experience and to enhance the student teacher's final preparation for employment.

Professional issues, ethical behavior, resume and interview techniques and other processes and professional entry concerns. For early childhood student teachers.

**Prerequisites:** Upper Division with a score of 1

**Corequisites:** CIEC 4930

**Term Offered:** Spring, Fall

**CIEC 4930 Internship/Student Teaching in Primary Education**

[9 credit hours]

Planned experience in public school classrooms under direction of University supervisor. Observation of teaching of experienced teacher; gradual acceptance of full responsibility by student teacher for planning, instruction, evaluation and related duties.

**Prerequisites:** Upper Division with a score of 1 and CIEC 4770 with a minimum grade of C

**Corequisites:** CIEC 4900

**Term Offered:** Spring, Fall

**CIEC 4980 Special Topics In Early Childhood Education**

[1-5 credit hours]

Topics of interest and concern to preservice, inservice and non-degree teachers within districts and community agencies served by the Center for Educational Development. May be included in an undergraduate degree program.

**Term Offered:** Spring, Fall

**CIEC 4990 Undergraduate Independent Study In Early Childhood Education**

[1-5 credit hours]

Individual study designed to provide a student the opportunity to work individually on professional problems under the direction of the Early Childhood faculty.

**Term Offered:** Spring, Fall

**CTE 4010 Teaching Occupational Skills**

[3 credit hours]

This course is required for the Health Careers, Career-Technical Education and the six Career-Technical Licenses. This course addresses multiple topics critical to workforce education as they apply to the laboratory environment. Students are provided classroom and clinical experiences designed to assist the beginning teacher with basic laboratory instructional techniques and management strategies that integrate academic, occupational and employability skills in a contextual framework.

**Term Offered:** Summer

**CTE 4020 Occupational Safety & Liability**

[3 credit hours]

This course is required for the Adult Education, Career Based Intervention, and Work-Site Teacher/Coordinator endorsements. Occupational health and safety hazards applicable to school, business, and industry, will be examined. Utilizing clinical and classroom experiences students will investigate: the rationale for safety training; strategies to minimize exposure and prevent injuries; specific topics, such as ergonomics, blood borne pathogens, air quality, sound, hazardous materials, back safety, substance abuse, violence in the workplace, etc.

**Term Offered:** Summer

**CTE 4030 Teaching Occupational Knowledge**

[3 credit hours]

This course is required for the Health Careers, Career-Technical Education and the six Career-Technical Licenses. Designed as a co-requisite in the professional education series, this course addresses multiple topics critical to workforce education as they apply to the classroom environment. Students are provided classroom and clinical experiences designed to assist the beginning teacher with basic classroom instructional techniques and management strategies that integrate academic, occupational and employability skills in a contextual framework.

**Term Offered:** Summer

**CTE 4050 Methods Of Teaching Career And Technical Education I**

[2 credit hours]

This course is required for the Health Careers, Career-Technical Education and the six Career- Technical Licenses. The pedagogical and management skills introduced in CTE 4010 are integrated in a contextual framework utilizing an actual laboratory situation. Learning styles; laboratory planning, instruction, technology, and management; integrated academics; performance assessment; safety and liability issues; employability and SCANS skills; community partnerships; school-based and work-site learning; etc. are the basis for student research, reflection, and inquiry

**Term Offered:** Spring, Fall

**CTE 4070 Methods Of Teaching Career And Technical Education II**

[2 credit hours]

This course is required for the Health Careers, Career-Technical Education and the six Career-Technical Licenses. The pedagogical and management skills introduced in CTE 4030 are integrated in a contextual framework utilizing an actual classroom setting. Organizing curriculum; instructional planning, management, delivery and technology; learning theory; behavior management; motivation; integrated academics; authentic assessment; career-technical student organizations; etc. are the basis for student research, reflection, and inquiry.

**Term Offered:** Spring

**CTE 4110 Seminar for CTE Teachers**

[3 credit hours]

The career-technical education teacher is an occupational professional who possesses the pedagogical knowledge and reflective decision making skills necessary to enter the teaching profession at multiple levels. In order to prepare individuals as career-technical instructors, components of the licensure program were developed and approved by the State Board of Education, to promote high professional standards to provide quality classroom teachers. The components are: a clear mission; operational goals; specific competencies of an assessment system.

**Term Offered:** Spring

**CTE 4160 Curriculum Development & Teaching Co-Operative Education**

[3 credit hours]

This course is required for the Career Based Intervention. Designed as a study of cooperative education curriculum and instructional methods, the course includes the coordination of school-based instruction with on-the-job work-based experience. Learning styles of diverse students; instructional planning and delivery; classroom management; integrated academics; authentic assessment; safety and liability issues; employability and SCANS skills; community partnerships; school-based and work-site learning; etc. are the basis for student research, reflection, and inquiry.

**Term Offered:** Summer**CTE 4900 Curriculum Construction**

[3 credit hours]

This course is required for the Health Careers, Career-Technical Education and the six Career-Technical Licenses. A planned field experience will be completed in public school classrooms under the direction of university facilitated induction teams. The university faculty member, on-site teacher mentor, and local administrator will collaborate to assure the novice teacher maximizes his/her potential as an individual and member of an educational team. Students are provided a contextual framework to integrate theory and practice.

**Term Offered:** Fall**CTE 4930 Supervised Teaching**

[3-8 credit hours]

This course is required for the Health Careers, Career-Technical Education and the six Career-Technical Licenses. A planned field experience will be completed in public school classrooms under the direction of university facilitated induction teams. The university faculty member, on-site teacher mentor, and local administrator will collaborate to assure the novice teacher maximizes his/her potential as an individual and member of an educational team. Students are provided a contextual framework to integrate theory and practice.

**Term Offered:** Spring, Fall**CTE 4980 Problems In Career And Technical Education**

[1-5 credit hours]

A course developed around topics of interest and concern to inservice teachers. Stresses solution and resolution of educational problems occurring within selected districts.

**Term Offered:** Spring, Summer, Fall**CTE 4990 Individual Study In Career And Technical Education For Undergraduate Students**

[1-3 credit hours]

Individual study is designed to provide the opportunity to work individually on professional problems under the direction of the faculty in career and technical education.

**Term Offered:** Spring, Summer, Fall**SPED 2040 Perspectives In The Field Of Exceptionalities**

[3 credit hours]

Synthesis of the cross-categorical components required of special education. Issues addressed: causes and characteristics for disabling conditions and issues related to persons with disabilities, i.e., identification, intervention strategies, educational settings. Role of professionals in the field of special education.

**Term Offered:** Spring, Summer, Fall**SPED 3130 Linguistic Analysis**

[3 credit hours]

Identification and evaluation of language usage. Course focuses upon development of competence for the analysis of semantic and syntactic components of language. Some pragmatic analysis is included. Lab required.

**Term Offered:** Spring, Fall**SPED 3670 American Sign Language I**

[3 credit hours]

Principles of manual communication. Course builds an expressive and receptive vocabulary of at least 1,000 signs in American Sign Language (ASL) and Pidgin Signed English. Ten hours of lab required.

**Term Offered:** Summer, Fall**SPED 3680 American Sign Language II And Basics Of Interpreting**

[3 credit hours]

Emphasis on fluency development in manual communication. Study of various models of interpreting and transliterating processes.

**Prerequisites:** SPED 3670 with a minimum grade of D-**Term Offered:** Spring, Summer**SPED 3690 American Sign Language III**

[4 credit hours]

American Sign Language III is designed to continue the development of proficiency in using the language and understanding the culture of the Deaf. Student will gain knowledge and skill in applying approximately 900 additional vocabulary words. Students will advance in the complexity of sentence structure and grammatical structures including classifiers, specifier, verb modulations and aspects, special referencing, pluralizations and the importance of facial expressions.

**Prerequisites:** SPED 3680 with a minimum grade of D-**Term Offered:** Summer, Fall**SPED 3700 American Sign Language IV**

[4 credit hours]

American Sign Language IV is designed to continue the development of proficiency in using the language and understanding the culture of the Deaf. Student will gain knowledge and skill in applying approximately 900 additional vocabulary words.

**Prerequisites:** (SPED 3670 with a minimum grade of C and SPED 3680 with a minimum grade of C and SPED 3690 with a minimum grade of C)**Term Offered:** Spring, Summer**SPED 4010 Atypical Development In Early Childhood: Implications For Development**

[3 credit hours]

Factors that contribute to atypical development in early childhood, appropriate intervention models and implications of delay on young children's development.

**SPED 4060 Specialized Intervention In Infancy And Early Childhood**

[3 credit hours]

Atypical infant, toddler and early childhood development examined. Intervention strategies in home, school and specialized environments, which are family-centered and developmentally appropriate, will be addressed. Forty (40) clock hour practicum required.

**Prerequisites:** Upper Division with a score of 1**Term Offered:** Fall

**SPED 4080 Curriculum Adaptations & Strategies In Early Childhood Education**

[3 credit hours]

Curriculum models and intervention strategies which facilitate the cognitive, academic, social, language, self-help and lay skills of children with disabilities in preschool and primary grades will be examined.

**Prerequisites:** Upper Division with a score of 1 and CIEC 3200 with a minimum grade of D- and CIEC 4340 with a minimum grade of D-

**Term Offered:** Spring, Fall

**SPED 4100 Practicum in Special Education**

[1 credit hour]

Practicum is a supervised opportunity for students to gain experience in the classroom and other settings that provide direct instruction to children and youth with disabilities. Techniques designed to increase task engagement/learning and facilitate inclusion of students with special needs into the general education classroom will be explored and practiced. These experiences assist students in acquiring the knowledge and skills needed to function well as an educator in a changing and diverse society. Further, activities will assist students in acquiring knowledge of the field of special education and related areas of inquiry; an understanding of learners and learning processes; knowledge of effective instructional technology necessary for professional practice; human relations skills needed to work effectively in both professional and community roles; commitment to active, ethical involvement in the community and in the teaching profession; and knowledge of professional ethical and legal issues affecting educators.

**Prerequisites:** Upper Division with a score of 1

**Corequisites:** SPED 4110, SPED 4120, SPED 4370

**Term Offered:** Spring, Fall

**SPED 4110 Curriculum And Methodology For Students With Moderate Educational Needs**

[3 credit hours]

This course focuses on community-referenced functional curricula approaches to teaching students with moderate educational needs. Topics include inclusionary activities, community-based instruction, social skills.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Spring, Fall

**SPED 4120 Curriculum And Methodology For Students With Intensive Educational Needs**

[3 credit hours]

Examination of appropriate curriculum models, instructional strategies and adaptations, and related behavior problems for students with intensive educational needs. A transdisciplinary team approach is explored.

**Prerequisites:** SPED 4110 with a minimum grade of D- and SPED 4240 with a minimum grade of D-

**Corequisites:** SPED 4100

**Term Offered:** Spring

**SPED 4210 AAC for Young Children with Disabilities**

[3 credit hours]

This course will provide an overview of alternative or augmentative modes of communication for children who are unable to meet their daily communication needs through natural modes such as speech, gestures or handwriting.

**Term Offered:** Summer, Fall

**SPED 4250 Transition Process from High School to Post-Secondary Settings for Students with Disabilities**

[3 credit hours]

This course prepares the pre-service special education interventionist to support students with disabilities during the transition from high school to post-secondary settings. The course will address several issues regarding transition, including legislation, assessment and planning, self-determination skills, and evidence-based instructional strategies.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Fall

**SPED 4260 Family And Professional Partnership In Special Education**

[3 credit hours]

Effective parent and professional partnerships will be explored. Interpersonal communication skills, legal issues, effective models for home-school communication, and differences in culture, values and family expectations will be discussed.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Summer, Fall

**SPED 4340 Effective Management Of Students With Special Needs In Educational Settings**

[3 credit hours]

Techniques for managing student behavior. Topics include analyzing environments and problems, implementing and evaluating interventions, data collection and analysis, and handling aggression and noncompliance. Case-backed approach. Integrated field component required.

**Prerequisites:** Upper Division with a score of 1 and SPED 4110 with a minimum grade of D- and SPED 4240 with a minimum grade of D-

**Term Offered:** Spring

**SPED 4370 Curriculum And Methods For Students With Mild Educational Needs**

[3 credit hours]

Study of causes and characteristics of mild disorders. Discussion will be on theoretical considerations as well as intervention approaches pertinent to the school and clinic setting. Taken concurrently with SPED 4100 and SPED 4110.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Spring

**SPED 4450 Methods of Teaching Students With Emotional Disturbance**

[3 credit hours]

This course provides evaluation and application techniques of research-based methodologies for teaching students with emotional disturbance in school-based settings within the least restrictive environment.

**Prerequisites:** SPED 4340 with a minimum grade of D-

**Term Offered:** Fall

**SPED 4600 Professional Reflective Seminar**

[3 credit hours]

This seminar is taken concurrently with student teaching/internship. Students will evaluate their behavior in relation to the classroom environment. The students will develop alternative strategies in the educational setting.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Spring, Fall

**SPED 4900 Seminar In Special Education**

[1-5 credit hours]

Seminar provides students with the opportunity to explore, as a group, specific topics with a faculty member. Current issues in the area of Special Education will be the focus.

**Term Offered:** Spring, Summer, Fall**SPED 4930 Internship/Student Teaching In Special Education**

[9 credit hours]

This course provides undergraduate pre-service special education interventionists with a full-time student teaching experience with students with disabilities. Teaching experiences may occur in classrooms found within the continuum of placements, ranging from (not limited to) general education with consult to special schools. Full responsibility for the classroom is expected by the end of the student teaching experience.

**Prerequisites:** Upper Division with a score of 1 and SPED 4370 with a minimum grade of C or SPED 4120 with a minimum grade of C

**Corequisites:** SPED 4600**Term Offered:** Spring**SPED 4980 Special Topics In Special Education**

[1-5 credit hours]

An advanced course for undergraduate majors in special education or majors in related fields covering an important area of special education. Student may repeat this course under different section numbers.

**Term Offered:** Spring, Summer, Fall**SPED 4990 Independent Study - Special Education**

[1-5 credit hours]

Individual study provides students with opportunities to work individually on issues under the direction of department of Special Education Services faculty. The student meets with instructor without formal classes.

**Term Offered:** Spring, Summer, Fall

## BE in Adolescent and Young Adult Education

The Bachelor of Education in Adolescent and Young Adult Education is designed for students who wish to earn an initial Ohio teaching license at the undergraduate level in conjunction with a bachelor's degree. Students in this program earn a bachelor's degree and complete requirements for an initial Ohio educator license in Adolescent and Young Adult Education for grades 7 through 12 in one subject-matter area. Subject-matter areas options include: chemistry, Earth and space science, integrated language arts, integrated mathematics, integrated science, integrated social studies, life science, and physics.

### Degree Requirements by Concentration

- Chemistry (p. 582)
- Earth and Space Science (p. 583)
- Integrated Language Arts (p. 585)
- Integrated Mathematics (p. 586)
- Integrated Science (p. 587)
- Integrated Social Studies (p. 588)
- Life Science (p. 590)
- Physics (p. 591)

## Concentration in Chemistry

For the Bachelor of Education degree, students must complete the following program requirements:

**University Undergraduate Core Curriculum:** 36 to 42 semester hours; university core curriculum courses may also fulfill specific program requirements listed below.

**Pre-professional Education:** A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

Code	Title	Hours
Select the following:		
EDU 1700	Introduction to Education	3
EDP 3200	Applied Psychology For Teachers	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select ONE of the following:		
MATH 1180	Reasoning With Mathematics	3
MATH 1210	Mathematics For Education Majors I	3
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4
<b>Total Hours</b>		<b>22</b>

### Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

**Subject-matter Specialization:** A minimum GPA of 2.7 in the specialization is required.

Code	Title	Hours
Core Subject-matter in Chemistry, select the following:		
CHEM 1230	General Chemistry I	4
CHEM 1240	General Chemistry II	4
CHEM 1280	General Chemistry Lab I	1

CHEM 1290	General Chemistry Lab II	1
CHEM 2410	Organic Chemistry I	3
CHEM 2420	Organic Chemistry II	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
CHEM 3310	Analytical Chemistry	2
Supporting Subject-matter, select ALL of the following sets:		
Earth and Space Science		
EEES 2020	Introduction to the Environment: Energy and Climate	3
EEES 2030	Introduction to the Environment Land-Use and Water	3
Life Science		
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
Physics		
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
Mathematics		
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4
MATH 2600	Introduction To Statistics	3

CI 4390	Practicum III	1
RESM 4200	Classroom Assessment	3
Professional Education in Science, select the following:		
CI 4680	The Nature of Science	3
CI 4170	Methods of Teaching AYA Science	3
CI 4270	Advanced Methods of Teaching AYA Science	3
Professional Education Internship*, select the following:		
CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9

\*Internship Eligibility: The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- All professional courses completed with a C or higher
- Professional education courses GPA >2.7
- Completion of 90% of subject matter specializations
- Subject matter GPA >2.7
- Completion of 100 credits and 30 credits residency at UToledo
- UT GPA >2.7

#### Additional Requirements

Current BCI & FBI background checks are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (<http://www.oh.nesinc.com/>) (OAE) tests specified by the The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

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## Concentration in Earth and Space Science

For the Bachelor of Education degree, students must complete the following program requirements:

**University Undergraduate Core Curriculum:** 36 to 42 semester hours; university core curriculum courses may also fulfill specific program requirements listed below.

**Pre-professional Education:** A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

Code	Title	Hours
Select the following:		
EDU 1700	Introduction to Education	3
EDP 3200	Applied Psychology For Teachers	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select ONE of the following:		

**Admission to Professional Education:** Admission is required prior to enrolling in Professional Education courses.

- Enrolled as a regular student in BE in Adolescent and Young Adult Education with a concentration in chemistry
- All pre-professional courses completed with a C or higher
- Pre-professional courses GPA of 2.7 or higher
- Subject-matter courses GPA of 2.7 or higher
- Minimum of 48 credits overall and 12 credits in residency at UToledo
- UT GPA of 2.7 or higher

**Professional Education:** Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.

Code	Title	Hours
Professional Education, select the following:		
CI 4190	Practicum I	1
CI 4290	Practicum II	1



MATH 1180	Reasoning With Mathematics	3	MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4
MATH 1210	Mathematics For Education Majors I	3	MATH 2600	Introduction To Statistics	3
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4			

### Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

### Subject-matter Specialization: A minimum GPA of 2.7 in the specialization is required.

Code	Title	Hours
Core Subject-matter in Earth and Space Science, select the following:		
ASTR 2010	Solar System Astronomy	3
ASTR 2020	Stars, Galaxies, And The Universe	3
ASTR 2050	Elementary Astronomy Laboratory	1
EEES 2020	Introduction to the Environment: Energy and Climate	3
EEES 2030	Introduction to the Environment Land-Use and Water	3
EEES 2100	Fundamentals Of Geology	4
PHYS 1910	Frontiers Of Physics And Astronomy	3
Supporting Subject-matter, select ALL of the following sets:		
Chemistry		
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
Life Science		
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
Physics		
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
Mathematics		
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4

### Admission to Professional Education: Admission is required prior to enrolling in Professional Education coursework.

- Enrolled as a regular student in BE in Adolescent and Young Adult Education with a concentration in Earth and space science
- All pre-professional courses completed with a C or higher
- Pre-professional courses GPA of 2.7 or higher
- Subject-matter courses GPA of 2.7 or higher
- Minimum of 48 credits overall and 12 credits in residency at UToledo
- UT GPA of 2.7 or higher

### Professional Education: Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.

Code	Title	Hours
Professional Education, select the following:		
CI 4190	Practicum I	1
CI 4290	Practicum II	1
CI 4390	Practicum III	1
RESM 4200	Classroom Assessment	3
Professional Education in Science, select the following:		
CI 4680	The Nature of Science	3
CI 4170	Methods of Teaching AYA Science	3
CI 4270	Advanced Methods of Teaching AYA Science	3
Professional Education Internship*, select the following:		
CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9

\*Internship Eligibility: The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- All professional courses completed with a C or higher
- Professional education courses GPA of 2.7 or higher
- Completion of 90% of subject matter specializations
- Subject matter GPA of 2.7 or higher
- Completion of 100 credits and 30 credits residency at UToledo
- UT GPA of 2.7 or higher

### **Additional Requirements**

Current BCI & FBI background checks are required prior to beginning classroom experiences.



Acceptable scores on all Ohio Assessment for Educators (<http://www.oh.nesinc.com/>) (OAE) tests specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

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## Concentration in Integrated Language Arts

For the Bachelor of Education degree, students must complete the following program requirements:

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**University Undergraduate Core Curriculum:** 36 to 42 semester hours; university core curriculum courses may also fulfill specific program requirements listed below.

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**Pre-professional Education:** A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

Code	Title	Hours
Select the following:		
EDU 1700	Introduction to Education	3
EDP 3200	Applied Psychology For Teachers	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select ONE of the following:		
MATH 1180	Reasoning With Mathematics	3
MATH 1210	Mathematics For Education Majors I	3
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4

### Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

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**Subject-matter Specialization:** A minimum GPA of 2.7 in the specialization is required.

Code	Title	Hours
Core Subject-matter in Language Arts, select the following:		
ENGL 3600	American Literary Traditions	3
ENGL 3610	British Literary Traditions	3
ENGL 3770	World Literature And Cultures	3
ENGL 3790	Foundations Of Literary Study	3
ENGL 3810	Shakespeare I	3
ENGL 4090	Current Writing Theory	3
COMM 2150	Digital Design for Media Communication	3
Select ONE of the following:		
ENGL 2010	Advanced Composition	3
ENGL 3050	Persuasive Writing	3
Supporting Subject-matter, select ALL of the following sets:		
Select ONE of the following:		
ENGL 3010	Creative Writing	3
ENGL 4030	Writing Workshop In Nonfictional Prose	3
ENGL 4070	Writing Workshop In Poetry	3
ENGL 4080	Writing Workshop In Fiction	3
Select ONE of the following:		
COMM 2600	Public Presentations	3
COMM 3340	Visual Communication	3
COMM 3610	Speech Writing	3
COMM 3820	Persuasion Theory	3
Select ONE of the following:		
ENGL 3660	Latinx Literature in the U.S.	3
ENGL 4610	Nineteenth-Century Latinx Literature	3
ENGL 4650	African American Writers Before The 20th Century	3
ENGL 4660	African American Literature In The 20th and 21st Century	3
ENGL 4670	Asian American Literature	3
ENGL 4690	Native American Literature And Culture	3

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**Admission to Professional Education:** Admission is required prior to enrolling in Professional Education coursework.

- Enrolled as a regular student in BE in Adolescent and Young Adult Education with a concentration in integrated language arts
- All pre-professional courses completed with a C or higher
- Pre-professional courses GPA of 2.7 or higher
- Subject-matter courses GPA of 2.7 or higher
- Minimum of 48 credits overall and 12 credits in residency at UToledo
- UT GPA of 2.7 or higher

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**Professional Education:** Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.

Code	Title	Hours
Professional Education, select the following:		
CI 4190	Practicum I	1
CI 4290	Practicum II	1
CI 4390	Practicum III	1
RESM 4200	Classroom Assessment	3
Professional Education in Language Arts, select the following:		
CI 4320	Literature For Young Adults	3
CI 4150	Methods of Teaching AYA English Language Arts	3
CI 4250	Advanced Methods of Teaching AYA English Language Arts	3
Professional Education Internship*, select the following:		
CI 4730	Seminar Managing the English Language Arts Classroom	3
CI 4930	Internship/Student Teaching	9

\*Internship Eligibility: The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- [All professional courses completed with a C or higher](#)
- [Professional education courses GPA of 2.7 or higher](#)
- [Completion of 90% of subject matter specializations](#)
- [Subject matter GPA of 2.7 or higher](#)
- [Completion of 100 credits and 30 credits residency at UToledo](#)
- [UT GPA of 2.7 or higher](#)

### Additional Requirements

Current BCI & FBI background checks are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (<http://www.oh.nesinc.com/>) (OAE) tests specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

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## Concentration in Integrated Mathematics

[For the Bachelor of Education degree, students must complete the following program requirements:](#)

**University Undergraduate Core Curriculum:** 36 to 42 semester hours; university core curriculum courses may also fulfill specific program requirements listed below.

[Pre-professional Education: A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.](#)

Code	Title	Hours
Select the following:		
EDU 1700	Introduction to Education	3

EDP 3200	Applied Psychology For Teachers	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select ONE of the following:		
MATH 1180	Reasoning With Mathematics	3
MATH 1210	Mathematics For Education Majors I	3
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4

### Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

[Subject-matter Specialization: A minimum GPA of 2.7 in the specialization is required.](#)

Code	Title	Hours
Core Subject-matter in Mathematics, select the following:		
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4
MATH 2190	Foundations of Mathematics	3
MATH 2850	Elementary Multivariable Calculus	4
MATH 2890	Numerical Methods And Linear Algebra	3
MATH 3320	Introduction To Abstract Algebra	3
MATH 3440	Fundamentals Of Modern Geometry I	3
MATH 3450	Fundamentals Of Modern Geometry II	3
MATH 3510	History Of Mathematics	3
MATH 3610	Statistical Methods I	3
MATH 4380	Discrete Structures And Analysis Of Algorithms	3
MATH 4680	Introduction To Theory Of Probability	3

[Admission to Professional Education: Admission is required prior to enrolling in Professional Education coursework.](#)

- [Enrolled as a regular student in BE in Adolescent and Young Adult Education with a concentration in integrated mathematics](#)
- [All pre-professional courses completed with a C or higher](#)

- [Pre-professional courses GPA of 2.7 or higher](#)
- [Subject-matter courses GPA of 2.7 or higher](#)
- [Minimum of 48 credits overall and 12 credits in residency at UToledo](#)
- [UT GPA of 2.7 or higher](#)

**Professional Education:** Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.

Code	Title	Hours
Professional Education, select the following:		
CI 4190	Practicum I	1
CI 4290	Practicum II	1
CI 4390	Practicum III	1
RESM 4200	Classroom Assessment	3
Professional Education in Mathematics, select the following:		
CI 4550	Teaching Problem Solving In Mathematics	3
CI 4160	Methods of Teaching AYA Mathematics	3
CI 4260	Advanced Methods of Teaching AYA Mathematics	3
Professional Education Internship*, select the following:		
CI 4740	Seminar: Managing the Mathematics Classroom	3
CI 4930	Internship/Student Teaching	9

\***Internship Eligibility:** The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- [All professional courses completed with a C or higher](#)
- [Professional education courses GPA of 2.7 or higher](#)
- [Completion of 90% of subject matter specializations](#)
- [Subject matter GPA of 2.7 or higher](#)
- [Completion of 100 credits and 30 credits residency at UToledo](#)
- [UT GPA of 2.7 or higher](#)

**Additional Requirements**

Current BCI & FBI background checks are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (<http://www.oh.nesinc.com/>) (OAE) tests specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

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## Concentration in Integrated Science

For the Bachelor of Education degree, students must complete the following program requirements:

**University Undergraduate Core Curriculum:** 36 to 42 semester hours; university core curriculum courses may also fulfill specific program requirements listed below.

**Pre-professional Education:** A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

Code	Title	Hours
Select the following:		
EDU 1700	Introduction to Education	3
EDP 3200	Applied Psychology For Teachers	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select ONE of the following:		
MATH 1180	Reasoning With Mathematics	3
MATH 1210	Mathematics For Education Majors I	3
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4

**Supporting Coursework**

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

**Subject-matter Specialization:** A minimum GPA of 2.7 in the specialization is required.

Code	Title	Hours
Core Subject-matter in Science, select ALL of the following sets:		
Chemistry		
CHEM 1230	General Chemistry I	0,4
CHEM 1240	General Chemistry II	0,4
CHEM 1280	General Chemistry Lab I	1
CHEM 1290	General Chemistry Lab II	1
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
Earth and Space Science		
ASTR 2010	Solar System Astronomy	3
ASTR 2020	Stars, Galaxies, And The Universe	3
ASTR 2050	Elementary Astronomy Laboratory	1



EEES 2020	Introduction to the Environment: Energy and Climate	3
EEES 2030	Introduction to the Environment Land-Use and Water	3
EEES 2100	Fundamentals Of Geology	4
Life Science		
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
BIOL 3010	Molecular Genetics	3
EEES 3050	General Ecology	3
Physics		
PHYS 1910	Frontiers Of Physics And Astronomy	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
Mathematics		
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4
MATH 2600	Introduction To Statistics	3

**Admission to Professional Education:** Admission is required prior to enrolling in Professional Education coursework.

- [Enrolled as a regular student in BE in Adolescent and Young Adult Education with a concentration in integrated science](#)
- [All pre-professional courses completed with a C or higher](#)
- [Pre-professional courses GPA of 2.7 or higher](#)
- [Subject-matter courses GPA of 2.7 or higher](#)
- [Minimum of 48 credits overall and 12 credits in residency at UToledo](#)
- [UT GPA of 2.7 or higher](#)

**Professional Education:** Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.

Code	Title	Hours
Professional Education, select the following:		
CI 4190	Practicum I	1
CI 4290	Practicum II	1
CI 4390	Practicum III	1

RESM 4200	Classroom Assessment	3
Professional Education in Science, select the following:		
CI 4680	The Nature of Science	3
CI 4170	Methods of Teaching AYA Science	3
CI 4270	Advanced Methods of Teaching AYA Science	3
Professional Education Internship*, select the following:		
CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9

\***Internship Eligibility:** The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- [All professional courses completed with a C or higher](#)
- [Professional education courses GPA of 2.7 or higher](#)
- [Completion of 90% of subject matter specializations](#)
- [Subject matter GPA of 2.7 or higher](#)
- [Completion of 100 credits and 30 credits residency at UToledo](#)
- [UT GPA of 2.7 or higher](#)

#### Additional Requirements

Current BCI & FBI background checks are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (<http://www.oh.nesinc.com/>) (OAE) tests specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

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## Concentration Integrated Social Studies

For the Bachelor of Education degree, students must complete the following program requirements:

**University Undergraduate Core Curriculum:** 36 to 42 semester hours; university core curriculum courses may also fulfill specific program requirements listed below.

Pre-professional Education: A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

Code	Title	Hours
Select the following:		
EDU 1700	Introduction to Education	3
EDP 3200	Applied Psychology For Teachers	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select ONE of the following:		
MATH 1180	Reasoning With Mathematics	3

MATH 1210	Mathematics For Education Majors I	3
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4

**Supporting Coursework**

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

**Subject-matter Specialization: A minimum GPA of 2.7 in the specialization is required.**

Code	Title	Hours
Core Subject-matter in Social Studies, select the following:		
ECON 1010	Introduction To Economic Issues	3
ECON 1150	Principles Of Macroeconomics	3
GEPL 2010	Fundamentals Of Geography	3
HIST 2000	Methods Seminar - WAC	4
HIST 2010	America To 1865	3
HIST 2020	America From 1865	3
PSC 1200	American National Government	3
PSC 2700	Principles Of International Relations	3
PSY 1010	Principles Of Psychology	3
SOC 1010	Introduction To Sociology	3
Supporting Subject-matter, select ALL of the following sets:		
Select TWO of the following:		
HIST 1050	World History To 1500	3
HIST 1060	World History From 1500	3
HIST 1070	The Contemporary World	3
Select TWO of the following:		
HIST 3290	Ohio History	3
HIST 3250	African-American History To 1865	3
HIST 3260	African-American History From 1865	3
HIST 3310	Ethnic America	3
HIST 3600	Women In American History	3
HIST 4200	Colonial Foundations Of U.s.	3
HIST 4210	Women In Early America	3
HIST 4220	The American Revolution	3
HIST 4280	U.s. Since 1945: Affluence And Anxiety	3
HIST 4430	Slavery In America	3
Select TWO of the following:		

ARTH 2200	Ethnographic Art	3
ARTH 3250	Topics In Asian Art	3
ARTH 3300	African Art	3
HIST 3100	European Middle Ages I	3
HIST 3200	Colonial Latin America	3
HIST 3210	Modern Latin America	3
HIST 3630	Africa To 1800	3
HIST 3640	Africa Since 1800	3
HIST 4450	The United States And Latin America	3
HIST 4470	People And Politics In Mexico	3
HIST 4720	Modern Chinese History	3
HIST 4740	Modern Japanese History	3
HIST 4790	The Holocaust	3
Select ONE of the following:		
ANTH 2800	Cultural Anthropology	3
GEPL 2040	World Regional Geography	3
GEPL 4160	Patterns Of World Development	3

**Admission to Professional Education: Admission is required prior to enrolling in Professional Education coursework.**

- Enrolled as a regular student in BE in Adolescent and Young Adult Education with a concentration in integrated social studies
- All pre-professional courses completed with a C or higher
- Pre-professional courses GPA of 2.7 or higher
- Subject-matter courses GPA of 2.7 or higher
- Minimum of 48 credits overall and 12 credits in residency at UToledo
- UT GPA of 2.7 or higher

**Professional Education: Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.**

Code	Title	Hours
Professional Education, select the following:		
CI 4190	Practicum I	1
CI 4290	Practicum II	1
CI 4390	Practicum III	1
RESM 4200	Classroom Assessment	3
Professional Education in Social Studies, select the following:		
CI 4720	Best Practices for Teaching Social Studies	3
CI 4180	Methods of Teaching AYA Social Studies	3
CI 4280	Advanced Methods of Teaching AYA Social Studies	3
Professional Education Internship*, select the following:		
CI 4790	Seminar: Managing the Social Studies Classroom	3
CI 4930	Internship/Student Teaching	9



**\*Internship Eligibility:** The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- [All professional courses completed with a C or higher](#)
- [Professional education courses GPA of 2.7 or higher](#)
- [Completion of 90% of subject matter specializations](#)
- [Subject matter GPA of 2.7 or higher](#)
- [Completion of 100 credits and 30 credits residency at UToledo](#)
- [UT GPA of 2.7 or higher](#)

### Additional Requirements

Current BCI & FBI background checks are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (<http://www.oh.nesinc.com/>) (OAE) tests specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

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## Concentration in Life Science

[For the Bachelor of Education degree, students must complete the following program requirements:](#)

**University Undergraduate Core Curriculum:** 36 to 42 semester hours; university core curriculum courses may also fulfill specific program requirements listed below.

[Pre-professional Education: A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.](#)

Code	Title	Hours
Select the following:		
EDU 1700	Introduction to Education	3
EDP 3200	Applied Psychology For Teachers	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select ONE of the following:		
MATH 1180	Reasoning With Mathematics	3
MATH 1210	Mathematics For Education Majors I	3
MATH 1750	Calculus For The Life Sciences With Applications I	4

### Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1

CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

**Subject-matter Specialization:** [A minimum GPA of 2.7 in the specialization is required.](#)

Code	Title	Hours
Core Subject-matter in Life Science, select the following:		
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
BIOL 3010	Molecular Genetics	3
EEES 3050	General Ecology	3
EEES 4150	Evolution	3
Supporting Subject-matter, select ALL of the following sets:		
Chemistry		
CHEM 1230	General Chemistry I	0,4
CHEM 1240	General Chemistry II	0,4
CHEM 1280	General Chemistry Lab I	1
CHEM 1290	General Chemistry Lab II	1
Earth and Space Science		
EEES 2020	Introduction to the Environment: Energy and Climate	3
Physics		
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
Mathematics		
MATH 1750	Calculus For The Life Sciences With Applications I	4
MATH 1760	Calculus For The Life Sciences With Applications II	3
MATH 2600	Introduction To Statistics	3

**Admission to Professional Education:** [Admission is required prior to enrolling in Professional Education coursework.](#)

- [Enrolled as a regular student in BE in Adolescent and Young Adult Education with a concentration in life science](#)
- [All pre-professional courses completed with a C or higher](#)
- [Pre-professional courses GPA of 2.7 or higher](#)

- [Subject-matter courses GPA of 2.7 or higher](#)
- [Minimum of 48 credits overall and 12 credits in residency at UToledo](#)
- [UT GPA of 2.7 or higher](#)

**University Undergraduate Core Curriculum:** [36 to 42 semester hours; university core curriculum courses may also fulfill specific program requirements listed below.](#)

**Professional Education:** [Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.](#)

**Pre-professional Education:** [A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.](#)

Code	Title	Hours
Professional Education, select the following:		
CI 4190	Practicum I	1
CI 4290	Practicum II	1
CI 4390	Practicum III	1
RESM 4200	Classroom Assessment	3
Professional Education in Science, select the following:		
CI 4680	The Nature of Science	3
CI 4170	Methods of Teaching AYA Science	3
CI 4270	Advanced Methods of Teaching AYA Science	3
Professional Education Internship*, select the following:		
CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9

Code	Title	Hours
Select the following:		
EDU 1700	Introduction to Education	3
EDP 3200	Applied Psychology For Teachers	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select ONE of the following:		
MATH 1180	Reasoning With Mathematics	3
MATH 1210	Mathematics For Education Majors I	3
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	3

\***Internship Eligibility:** The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- [All professional courses completed with a C or higher](#)
- [Professional education courses GPA of 2.7 or higher](#)
- [Completion of 90% of subject matter specializations](#)
- [Subject matter GPA of 2.7 or higher](#)
- [Completion of 100 credits and 30 credits residency at UToledo](#)
- [UT GPA of 2.7 or higher](#)

**Supporting Coursework**

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

**Additional Requirements**

Current BCI & FBI background checks are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (<http://www.oh.nesinc.com/>) (OAE) tests specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

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**Concentration in Physics**

[For the Bachelor of Education degree, students must complete the following program requirements:](#)

**Subject-matter Specialization:** A minimum GPA of 2.7 in the specialization is required.

Code	Title	Hours
Core Subject-matter in Physics, select the following:		
PHYS 1910	Frontiers Of Physics And Astronomy	3
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
PHYS 3180	Intermediate Laboratory	3
PHYS 3310	Modern Physics I	3
PHYS 3400	Physical Principles Of Energy Sources For Humans	3
Supporting Subject-matter, select ALL of the following sets:		
Chemistry		



CHEM 1230	General Chemistry I	4
CHEM 1240	General Chemistry II	4
Earth and Space Science		
ASTR 2010	Solar System Astronomy	3
EEES 2030	Introduction to the Environment Land-Use and Water	3
Life Science		
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
Mathematics		
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4
MATH 3610	Statistical Methods I	3

**Admission to Professional Education:** Admission is required prior to enrolling in Professional Education courses.

- Enrolled as a regular student in BE ADOL with a concentration in physics
- All pre-professional courses completed with a C or higher
- Pre-professional courses GPA of 2.7 or higher
- Subject-matter courses GPA of 2.7 or higher
- Minimum of 48 credits overall and 12 credits in residency at UToledo
- UT GPA of 2.7 or higher

**Professional Education:** Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.

Code	Title	Hours
Professional Education, select the following:		
CI 4190	Practicum I	1
CI 4290	Practicum II	1
CI 4390	Practicum III	1
RESM 4200	Classroom Assessment	3
Professional Education in Science, select the following:		
CI 4680	The Nature of Science	3
CI 4170	Methods of Teaching AYA Science	3
CI 4270	Advanced Methods of Teaching AYA Science	3
Professional Education Internship*, select the following:		
CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9

\***Internship Eligibility:** The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- All professional courses completed with a C or higher
- Professional education courses GPA >2.7
- Completion of 90% of subject matter specializations
- Subject matter GPA >2.7
- Completion of 100 credits and 30 credits residency at UToledo
- UT GPA >2.7

### Additional Requirements

Current BCI & FBI background checks are required prior to beginning classroom experiences.

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## Guides for Planning by Concentration

Below are guides for developing a plan of study for each concentration for the BE in Adolescent and Young Adult Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

- Chemistry (p. 592)
- Earth and Space Science (p. 593)
- Integrated Language Arts (p. 594)
- Integrated Mathematics (p. 595)
- Integrated Science (p. 595)
- Integrated Social Studies (p. 596)
- Life Science (p. 597)
- Physics (p. 598)

## Guide for Chemistry

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

First Term		Hours
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4
ENGL 1110	College Composition I	3
EDU 1000	Orientation To Education	1
Arts and Humanities Core		3
<b>Hours</b>		<b>16</b>
Second Term		Hours
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4



ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
EDU 1700	Introduction to Education	3
ETPT 2020	Technology And Multimedia In Educational Environments	3

**Hours 18**

**Third Term**

CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
EDP 3200	Applied Psychology For Teachers	3
Social Science Core		3

**Hours 15**

**Fourth Term**

CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
SPED 2040	Perspectives In The Field Of Exceptionalities	3
Arts and Humanities and Non-US Diversity Core		3

**Hours 15**

**Fifth Term**

CHEM 3310	Analytical Chemistry	2
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
CI 4680	The Nature of Science	3
CI 4190	Practicum I	1
Social Sciences Core		3

**Hours 16**

**Sixth Term**

BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
EEES 2030	Introduction to the Environment Land-Use and Water	3
RESM 4200	Classroom Assessment	3
CI 4170	Methods of Teaching AYA Science	3
CI 4290	Practicum II	1

**Hours 14**

**Seventh Term**

EEES 2020	Introduction to the Environment: Energy and Climate	3
MATH 2600	Introduction To Statistics	3
TSOC 3000	Schooling And Democratic Society	3

CI 4270	Advanced Methods of Teaching AYA Science	3
CI 4390	Practicum III	1
Diversity of US		3

**Hours 16**

**Eighth Term**

CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9

**Hours 12**

**Total Hours 122**

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## Guide for Earth and Space Science

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

<b>First Term</b>		<b>Hours</b>
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4
ENGL 1110	College Composition I	3
EDU 1000	Orientation To Education	1
Arts and Humanities Core		3

**Hours 16**

**Second Term**

MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
EDU 1700	Introduction to Education	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
Social Science Core		3

**Hours 16**

**Third Term**

EEES 2020	Introduction to the Environment: Energy and Climate	3
ASTR 2010	Solar System Astronomy	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
EDP 3200	Applied Psychology For Teachers	3
Arts and Humanities Core		3

**Hours 17**

**Fourth Term**

ASTR 2020	Stars, Galaxies, And The Universe	3
ASTR 2050	Elementary Astronomy Laboratory	1
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1



SPED 2040	Perspectives In The Field Of Exceptionalities	3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
EEES 2100	Fundamentals Of Geology	4
PHYS 1910	Frontiers Of Physics And Astronomy	3
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
CI 4680	The Nature of Science	3
CI 4190	Practicum I	1
Diversity of US		3
<b>Hours</b>		<b>17</b>
<b>Sixth Term</b>		
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
EEES 2030	Introduction to the Environment Land-Use and Water	3
RESM 4200	Classroom Assessment	3
CI 4170	Methods of Teaching AYA Science	3
CI 4290	Practicum II	1
<b>Hours</b>		<b>14</b>
<b>Seventh Term</b>		
MATH 2600	Introduction To Statistics	3
TSOC 3000	Schooling And Democratic Society	3
CI 4270	Advanced Methods of Teaching AYA Science	3
CI 4390	Practicum III	1
Non-US Diversity		3
<b>Hours</b>		<b>13</b>
<b>Eighth Term</b>		
CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

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## Guide for Integrated Language arts

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

First Term	Hours	
ENGL 1110	College Composition I	3
MATH 1210	Mathematics For Education Majors I	3
EDU 1000	Orientation To Education	1
Arts and Humanities Core		3
Social Sciences Core		3

Natural Science Core		3
<b>Hours</b>		<b>16</b>

### Second Term

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1220	Mathematics For Education Majors II	3
EDU 1700	Introduction to Education	3
ETPT 2020	Technology And Multimedia In Educational Environments	3

Natural Science Core		3
Natural Science Core Lab		1
<b>Hours</b>		<b>16</b>

### Third Term

COMM 2150	Digital Design for Media Communication	3
ENGL 3790	Foundations Of Literary Study	3
EDP 3200	Applied Psychology For Teachers	3
Language Arts Elective in Core		3
Language Arts Elective in Communication		3
Arts and Humanities Core		3

<b>Hours</b>		<b>18</b>
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### Fourth Term

ENGL 3810	Shakespeare I	3
ENGL 4090	Current Writing Theory	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
Social Sciences Core		3
Diversity in US		3

<b>Hours</b>		<b>15</b>
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### Fifth Term

ENGL 3600	American Literary Traditions	3
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
CI 4320	Literature For Young Adults	3
CI 4190	Practicum I	1
Language Arts Elective in Writing		3
University Core Elective		3

<b>Hours</b>		<b>16</b>
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### Sixth Term

ENGL 3610	British Literary Traditions	3
ENGL 3770	World Literature And Cultures	3
RESM 4200	Classroom Assessment	3
CI 4150	Methods of Teaching AYA English Language Arts	3
CI 4290	Practicum II	1
Elective		1

<b>Hours</b>		<b>14</b>
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### Seventh Term

TSOC 3000	Schooling And Democratic Society	3
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CI 4250	Advanced Methods of Teaching AYA English Language Arts	3
CI 4390	Practicum III	1
Language Arts Elective in Non-western Literature Elective		3
<b>Hours</b>		<b>13</b>
<b>Eighth Term</b>		
CI 4730	Seminar Managing the English Language Arts Classroom	3
CI 4930	Internship/Student Teaching	9
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

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## Guide for Integrated Mathematics

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

<b>First Term</b>		<b>Hours</b>
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4
ENGL 1110	College Composition I	3
EDU 1000	Orientation To Education	1
Arts and Humanities Core		3
Social Sciences Core		3
Natural Science Core		3
<b>Hours</b>		<b>17</b>

<b>Second Term</b>		<b>Hours</b>
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4
MATH 2190	Foundations of Mathematics	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
EDU 1700	Introduction to Education	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
<b>Hours</b>		<b>16</b>

<b>Third Term</b>		<b>Hours</b>
MATH 2850	Elementary Multivariable Calculus	4
MATH 3440	Fundamentals Of Modern Geometry I	3
MATH 3510	History Of Mathematics	3
EDP 3200	Applied Psychology For Teachers	3
Arts and Humanities Core		3
<b>Hours</b>		<b>16</b>

<b>Fourth Term</b>		<b>Hours</b>
MATH 3450	Fundamentals Of Modern Geometry II	3
MATH 2890	Numerical Methods And Linear Algebra	3
MATH 3320	Introduction To Abstract Algebra	3

SPED 2040	Perspectives In The Field Of Exceptionalities	3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>

<b>Fifth Term</b>		
MATH 4680	Introduction To Theory Of Probability	3
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
CI 4550	Teaching Problem Solving In Mathematics	3
CI 4190	Practicum I	1
Natural Science Core		3
Natural Science Core Lab		1
<b>Hours</b>		<b>14</b>

<b>Sixth Term</b>		
MATH 3610	Statistical Methods I	3
RESM 4200	Classroom Assessment	3
CI 4160	Methods of Teaching AYA Mathematics	3
CI 4290	Practicum II	1
Diversity of US		3
Elective		4
<b>Hours</b>		<b>17</b>

<b>Seventh Term</b>		
MATH 4380	Discrete Structures And Analysis Of Algorithms	3
TSOC 3000	Schooling And Democratic Society	3
CI 4260	Advanced Methods of Teaching AYA Mathematics	3
CI 4390	Practicum III	1
Non-US Diversity		3
<b>Hours</b>		<b>13</b>

<b>Eighth Term</b>		
CI 4740	Seminar: Managing the Mathematics Classroom	3
CI 4930	Internship/Student Teaching	9
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

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## Guide for Integrated Science

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

<b>First Term</b>		<b>Hours</b>
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4



ENGL 1110	College Composition I	3
EDU 1000	Orientation To Education	1
Arts and Humanities Core		3
<b>Hours</b>		<b>16</b>

**Second Term**

CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
EDU 1700	Introduction to Education	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
<b>Hours</b>		<b>18</b>

**Third Term**

BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
EDP 3200	Applied Psychology For Teachers	3
Social Sciences Core and Diversity of US		3
<b>Hours</b>		<b>16</b>

**Fourth Term**

BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
SPED 2040	Perspectives In The Field Of Exceptionalities	3
Arts and Humanities Core		3
<b>Hours</b>		<b>16</b>

**Fifth Term**

CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
ASTR 2010	Solar System Astronomy	3
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
CI 4680	The Nature of Science	3
CI 4190	Practicum I	1
<b>Hours</b>		<b>14</b>

**Sixth Term**

BIOL 3010	Molecular Genetics	3
RESM 4200	Classroom Assessment	3
CI 4170	Methods of Teaching AYA Science	3

CI 4290	Practicum II	1
Social Sciences Core		3
Non-US Diversity		3
<b>Hours</b>		<b>16</b>

**Seventh Term**

EEES 3050	General Ecology	3
EEES 2030	Introduction to the Environment Land-Use and Water	3
MATH 2600	Introduction To Statistics	3
TSOC 3000	Schooling And Democratic Society	3
CI 4270	Advanced Methods of Teaching AYA Science	3
CI 4390	Practicum III	1
<b>Hours</b>		<b>16</b>

**Eighth Term**

CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9
<b>Hours</b>		<b>12</b>

**Ninth Term**

EEES 2100	Fundamentals Of Geology	4
PHYS 1910	Frontiers Of Physics And Astronomy	3
ASTR 2010	Solar System Astronomy	3
ASTR 2050	Elementary Astronomy Laboratory	1
EEES 2020	Introduction to the Environment: Energy and Climate	3
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>138</b>

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## Guide for Integrated Social Studies

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

<b>First Term</b>	<b>Hours</b>	
HIST 2010	America To 1865	3
SOC 1010	Introduction To Sociology	3
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
EDU 1000	Orientation To Education	1
Arts and Humanities Core		3
<b>Hours</b>		<b>16</b>

**Second Term**

HIST 2020	America From 1865	3
HIST 1050	World History To 1500	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
ETPT 2020	Technology And Multimedia In Educational Environments	3

EDU 1700	Introduction to Education	3
<b>Hours</b>		<b>15</b>
<b>Third Term</b>		
HIST 2000	Methods Seminar - WAC	4
ECON 1010	Introduction To Economic Issues	3
PSY 1010	Principles Of Psychology	3
EDP 3200	Applied Psychology For Teachers	3
Social Studies Electives in World History		3
<b>Hours</b>		<b>16</b>

<b>Fourth Term</b>		
GEPL 2010	Fundamentals Of Geography	3
PSC 1200	American National Government	3
ECON 1150	Principles Of Macroeconomics	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
Natural Science Core		3
Natural Science Core Lab		1
<b>Hours</b>		<b>16</b>

<b>Fifth Term</b>		
HIST 3310	Ethnic America	3
PSC 2700	Principles Of International Relations	3
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
CI 4720	Best Practices for Teaching Social Studies	3
CI 4190	Practicum I	1
Natural Science Core		3
<b>Hours</b>		<b>16</b>

<b>Sixth Term</b>		
ARTH 3250	Topics In Asian Art	3
RESM 4200	Classroom Assessment	3
CI 4180	Methods of Teaching AYA Social Studies	3
CI 4290	Practicum II	1
Social Studies Elective in American History		3
Social Studies Elective in Geography		3
<b>Hours</b>		<b>16</b>

<b>Seventh Term</b>		
TSOC 3000	Schooling And Democratic Society	3
CI 4280	Advanced Methods of Teaching AYA Social Studies	3
CI 4390	Practicum III	1
Diversity of US		3
Social Studies Elective in Non-US History		3
<b>Hours</b>		<b>13</b>

<b>Eighth Term</b>		
CI 4790	Seminar. Managing the Social Studies Classroom	3

CI 4930	Internship/Student Teaching	9
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

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## Guide for Life Science

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

<b>First Term</b>		<b>Hours</b>
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 1750	Calculus For The Life Sciences With Applications I	4
ENGL 1110	College Composition I	3
EDU 1000	Orientation To Education	1
Arts and Humanities Core		3
<b>Hours</b>		<b>16</b>

<b>Second Term</b>		<b>Hours</b>
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
MATH 1760	Calculus For The Life Sciences With Applications II	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
EDU 1700	Introduction to Education	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
<b>Hours</b>		<b>17</b>

<b>Third Term</b>		<b>Hours</b>
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
EDP 3200	Applied Psychology For Teachers	3
Social Sciences Core		3
<b>Hours</b>		<b>16</b>

<b>Fourth Term</b>		<b>Hours</b>
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
SPED 2040	Perspectives In The Field Of Exceptionalities	3



Arts and Humanities Core		3
<b>Hours</b>		<b>16</b>
<b>Fifth Term</b>		
BIOL 3010	Molecular Genetics	3
EEES 3050	General Ecology	3
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
CI 4680	The Nature of Science	3
CI 4190	Practicum I	1
Social Science Core and Diversity in US		3
<b>Hours</b>		<b>16</b>
<b>Sixth Term</b>		
EEES 4150	Evolution	3
EEES 2020	Introduction to the Environment: Energy and Climate	3
RESM 4200	Classroom Assessment	3
CI 4170	Methods of Teaching AYA Science	3
CI 4290	Practicum II	1
Elective		1
<b>Hours</b>		<b>14</b>
<b>Seventh Term</b>		
MATH 2600	Introduction To Statistics	3
TSOC 3000	Schooling And Democratic Society	3
CI 4270	Advanced Methods of Teaching AYA Science	3
CI 4390	Practicum III	1
Non-US Diversity		3
<b>Hours</b>		<b>13</b>
<b>Eighth Term</b>		
CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

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## Guide for Physics

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

		<b>Hours</b>
<b>First Term</b>		
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4
ENGL 1110	College Composition I	3
EDU 1000	Orientation To Education	1

Arts and Humanities Core		3
<b>Hours</b>		<b>16</b>
<b>Second Term</b>		
PHYS 1910	Frontiers Of Physics And Astronomy	3
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
EDU 1700	Introduction to Education	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
<b>Hours</b>		<b>16</b>
<b>Third Term</b>		
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
EDP 3200	Applied Psychology For Teachers	3
Social Sciences Core		3
<b>Hours</b>		<b>16</b>
<b>Fourth Term</b>		
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
EEES 2030	Introduction to the Environment Land-Use and Water	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
Arts and Humanities Core		3
Elective		1
<b>Hours</b>		<b>15</b>
<b>Fifth Term</b>		
PHYS 3310	Modern Physics I	3
MATH 3610	Statistical Methods I	3
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
CI 4680	The Nature of Science	3
CI 4190	Practicum I	1
Diversity in US Core		3
<b>Hours</b>		<b>16</b>
<b>Sixth Term</b>		
PHYS 3180	Intermediate Laboratory	3
ASTR 2010	Solar System Astronomy	3
RESM 4200	Classroom Assessment	3
CI 4170	Methods of Teaching AYA Science	3

CI 4290	Practicum II	1
Non-US Diversity Core		3
<b>Hours</b>		<b>16</b>
<b>Seventh Term</b>		
PHYS 3400	Physical Principles Of Energy Sources For Humans	3
TSOC 3000	Schooling And Democratic Society	3
CI 4270	Advanced Methods of Teaching AYA Science	3
CI 4390	Practicum III	1
Social Science Core		3
<b>Hours</b>		<b>13</b>
<b>Eighth Term</b>		
CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

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- PLO 1: AYA teacher candidates demonstrate knowledge of the content area for which they have instructional responsibility.
- PLO 2: Teacher candidates can design learning environments that promote high levels of learning and achievement for all students.
- PLO 3: Teacher candidates can create plans for effective instruction that advances the learning of each individual student.
- PLO 4: Teacher candidates utilize varied assessments to inform instruction, evaluate and ensure student learning.
- PLO 5: Teacher candidates demonstrate they can collaborate and communicate with other educators, administrators, students, parents and the community to support student learning.
- PLO 6: Teacher candidates demonstrate that they can assume responsibility for professional growth, performance, and involvement as an individual, and as a member of a learning community.
- PLO 7: Teacher candidates utilize content appropriate materials, instructional strategies, and student learning activities.

## BE in Early Childhood Education

The Bachelor of Education in Early Childhood Education degree is designed for students who wish to earn an initial Ohio teaching license at the undergraduate level in conjunction with a bachelor's degree. Students in this program earn a bachelor's degree and complete requirements for an initial Ohio educator license in Primary Education for grades PK through grade 5. Students are prepared to work with children who are typically developing, at-risk, gifted and mild-moderate special needs infants, toddlers, preschoolers, kindergartners and primary students in a variety of settings.

## Degree Requirements

For the Bachelor of Education degree, students must complete the following program requirements:

**University Undergraduate Core Curriculum:** 36 to 42 semester hours; university core curriculum courses may also fulfill specific program requirements listed below.

**Pre-professional Education:** A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

Code	Title	Hours
Select the following:		
EDU 1700	Introduction to Education	3
CI 3400	Foundations of Literacy	3
CIEC 3200	Early Childhood Education: Philosophy And Practice	3
CIEC 3350	Child, Family & Public Policy In Early Childhood	3
CIEC 4340	Infant/Toddler Curriculum	3
EDP 3200	Applied Psychology For Teachers	3
EDP 3210	Child Development For Early Childhood Educators	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
TSOC 2000	Diversity In Contemporary Society	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1220	Mathematics For Education Majors II	3

### Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 3430	Phonics And Word Identification	3
CI 4470	Literacy Assessment and Remediation	3
CIEC 4750	Developmental Assessment In Early Childhood	3
EDP 4240	Classroom Engagement and Behavioral Supports	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
ENGL 1110	College Composition I	3
MATH 1210	Mathematics For Education Majors I	3

**Subject Matter Specialization:** A minimum GPA of 2.7 in the specialization is required.

Code	Title	Hours
Select ALL of the following sets:		
Language Arts		
Select ONE of the following:		
ENGL 2710	Reading Fiction	3
ENGL 2720	Reading Drama	3
ENGL 2730	Reading Poetry	3



ENGL 2800	Writing About Literature	3
Science		
Select TWO of the following:		
ASTR 1010	Survey Of Astronomy	3
BIOL 2010	Major Concepts In Biology	3
CHEM 1100	Chemistry And Society	3
EEES 1130	Down To Earth: Environmental Science	3
PHYS 1100	Our Physical World - Matter & Energy	3
Social Studies		
Select ONE of the following:		
HIST 1060	World History From 1500	3
HIST 1130	Introduction To Historical Thinking	3-4
HIST 2010	America To 1865	3
HIST 2020	America From 1865	3
Select ONE of the following:		
GEPL 1010	People, Places, and Society	3
GEPL 1100	Environmental Sustainability	3
Select ONE of the following:		
ECON 1010	Introduction To Economic Issues	3
PSC 1200	American National Government	3
SOC 1010	Introduction To Sociology	3
SOC 1020	Social Problems	3
SOC 2410	Communities - Writing Across the Curriculum	3
The Arts		
Select the following:		
AED 2100	Art Education for the Pre-Primary and Primary Child	3
MED 3030	Music For The Early Childhood Teacher	2

**Admission to Professional Education:** Admission is required prior to enrolling in Professional Education courses.

- Enrolled as a regular student in BE in Early Childhood Education
- All pre-professional courses completed with a C or higher
- Pre-professional courses GPA of 2.7 or higher
- Subject-matter courses GPA of 2.7 or higher
- Minimum of 48 credits overall and 12 credits in residency at UToledo
- UT GPA of 2.7 or higher

**Professional Education:** Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.

Code	Title	Hours
Professional Education, select the following:		
CI 3460	Literacy And Reading Development For Young Children	3
CI 4510	Mathematics For The Young Child	3

CIEC 3380	Practicum I	1
CIEC 4070	Effective Teaching Practices, Pre-K To 3rd Grade	3
CIEC 4460	Science Methods For Early Childhood Education	3
CIEC 4480	Practicum II	1
CIEC 4550	Teaching Methods For Early Childhood Social Studies	3
CIEC 4770	Practicum III	1
SPED 4080	Curriculum Adaptations & Strategies In Early Childhood Education	3
Professional Education Internship*, select the following:		
CIEC 4900	Internship/Student Teaching Seminar	3
CIEC 4930	Internship/Student Teaching in Primary Education	9

**\*Internship Eligibility:** The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- All professional courses completed with a C or higher
- Professional education courses GPA of 2.7 or higher
- Completion of 90% of subject matter specializations
- Subject matter GPA of 2.7 or higher
- Completion of 100 credits and 30 credits residency at UToledo
- UT GPA of 2.7 or higher

### Additional Requirements

Current BCI & FBI background checks are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (<http://www.oh.nesinc.com/>) (OAE) tests specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

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## Guide for Planning

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

First Term	Hours	
Subject-matter Elective in Science	3	
Subject-matter Elective in Social Studies	3	
ENGL 1110	College Composition I	3
MATH 1210	Mathematics For Education Majors I	3
EDU 1000	Orientation To Education	1
Non-US Diversity	3	
<b>Hours</b>		<b>16</b>
Second Term	Hours	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1220	Mathematics For Education Majors II	3
TSOC 2000	Diversity In Contemporary Society	3
EDU 1700	Introduction to Education	3



ETPT 2020	Technology And Multimedia In Educational Environments	3
<b>Hours</b>		<b>15</b>

**Third Term**

Subject-matter Elective in Language Arts		3
Subject-matter Elective in Science		3
Natural Sciences Lab		1
EDP 3200	Applied Psychology For Teachers	3
CI 3400	Foundations of Literacy	3
CIEC 3200	Early Childhood Education: Philosophy And Practice	3
<b>Hours</b>		<b>16</b>

**Fourth Term**

EDP 3210	Child Development For Early Childhood Educators	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
CI 3430	Phonics And Word Identification	3
CIEC 3350	Child, Family & Public Policy In Early Childhood	3
CIEC 4340	Infant/Toddler Curriculum	3
<b>Hours</b>		<b>15</b>

**Fifth Term**

Subject-matter Elective in Social Sciences		3
Subject-matter Elective in the Arts		3
SPED 4080	Curriculum Adaptations & Strategies In Early Childhood Education	3
CIEC 4070	Effective Teaching Practices, Pre-K To 3rd Grade	3
CIEC 3380	Practicum I	1
Elective		2
<b>Hours</b>		<b>15</b>

**Sixth Term**

Subject-matter Elective in Social Studies		3
EDP 4240	Classroom Engagement and Behavioral Supports	3
CI 3460	Literacy And Reading Development For Young Children	3
CIEC 4460	Science Methods For Early Childhood Education	3
CIEC 4480	Practicum II	1
Elective		2
<b>Hours</b>		<b>15</b>

**Seventh Term**

Subject-matter Elective in the Arts		3
CI 4470	Literacy Assessment and Remediation	3
CI 4510	Mathematics For The Young Child	3
CIEC 4550	Teaching Methods For Early Childhood Social Studies	3
CIEC 4750	Developmental Assessment In Early Childhood	3

CIEC 4770	Practicum III	1
<b>Hours</b>		<b>16</b>

**Eighth Term**

CIEC 4900	Internship/Student Teaching Seminar	3
CIEC 4930	Internship/Student Teaching in Primary Education	9
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

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- PLO 1: Candidates use their understanding of young children's characteristics and needs, and of multiple interacting influences on children's development and learning, to create environments that are healthy, respectful, supportive, and challenging for all children.
- PLO 2: Candidates know about, understand, and value the importance and complex characteristics of children's families and communities.
- PLO 3: They use this understanding to create respectful, reciprocal relationships that support and empower families, and to involve all families in their children's development and learning.
- PLO 4: Candidates know about and understand the goals, benefits, and uses of assessment.
- PLO 5: They know about and use systematic observations, documentation, and other effective assessment strategies in a responsible way, in partnership with families and other professionals, to positively influence children's development and learning.
- PLO 6: Candidates integrate their understanding of and relationships with children and families; their understanding of developmentally effective approaches to teaching and learning; and their knowledge of academic disciplines to design, implement, and evaluate experiences that promote positive development and learning for all children.
- PLO 7: Candidates identify and conduct themselves as members of the early childhood profession.
- PLO 8: They know and use ethical guidelines and other professional standards related to early childhood practice.
- PLO 9: They are continuous, collaborative learners who demonstrate knowledgeable, reflective, and critical perspectives on their work, making informed decisions that integrate knowledge from a variety of sources.

## BE in Middle Childhood Education

The Bachelor of Education in Middle Childhood Education is designed for students who wish to earn an initial Ohio teaching license at the undergraduate level in conjunction with a bachelor's degree. Students in this program earn a bachelor's degree and complete requirements for an initial Ohio educator license in Middle Childhood Education for grades 4 through 9 in two subject-matter areas. Subject-matter areas options include: mathematics, reading and language arts, science, and social studies.

## Degree Requirements

[For the Bachelor of Education degree, students must complete the following program requirements:](#)



**University Undergraduate Core Curriculum:** 36 to 42 semester hours; university core curriculum courses may also fulfill specific program requirements listed below.

**Pre-professional Education:** A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

Code	Title	Hours
Select the following:		
EDU 1700	Introduction to Education	3
CI 3400	Foundations of Literacy	3
CI 3430	Phonics And Word Identification	3
EDP 3200	Applied Psychology For Teachers	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select ONE of the following:		
MATH 1180	Reasoning With Mathematics	3
MATH 1210	Mathematics For Education Majors I	3
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4

#### Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4470	Literacy Assessment and Remediation	3
EDP 4240	Classroom Engagement and Behavioral Supports	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

**Subject-matter Specialization:** A minimum GPA of 2.7 in the specialization is required.

Code	Title	Hours
Select TWO SETS from the following sets:		
Language Arts		
ENGL 2720	Reading Drama	3
ENGL 2730	Reading Poetry	3
ENGL 3150	Linguistic Principles	3
ENGL 3600	American Literary Traditions	3
ENGL 3790	Foundations Of Literary Study	3
ENGL 4090	Current Writing Theory	3
CI 4300	Literature For Children	3

Mathematics		
MATH 1830	Calculus I For Mathematicians, Scientists And Educators	4
MATH 1840	Calculus II For Mathematicians, Scientists And Educators	4
MATH 2600	Introduction To Statistics	3
MATH 2620	Discrete Probability	3
MATH 2890	Numerical Methods And Linear Algebra	3
MATH 3440	Fundamentals Of Modern Geometry I	3
Science		
ASTR 1010	Survey Of Astronomy	3
BIOL 2010	Major Concepts In Biology	3
CHEM 1100	Chemistry And Society	3
CHEM 1150	Chemistry And Society Laboratory	1
EEES 2020	Introduction to the Environment: Energy and Climate	3
EEES 2030	Introduction to the Environment Land-Use and Water	3
PHYS 1100	Our Physical World - Matter & Energy	3
PHYS 1110	Physical World Laboratory	1
Social Studies		
ECON 1010	Introduction To Economic Issues	3
PSC 1200	American National Government	3
PSC 1710	Current International Problems	3
GEPL 3050	Geography of US and Canada	3
HIST 2010	America To 1865	3
HIST 2020	America From 1865	3
HIST 1050	World History To 1500	3
HIST 1060	World History From 1500	3

**Admission to Professional Education:** Admission is required prior to enrolling in Professional Education courses.

- Enrolled as a regular student in BE MIDD and has declared two concentrations
- All pre-professional courses completed with a C or higher
- Pre-professional courses GPA of 2.7 or higher
- Subject-matter courses GPA of 2.7 or higher
- Minimum of 48 credits overall and 12 credits in residency at UToledo
- UT GPA of 2.7 or higher

**Professional Education:** Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.

Code	Title	Hours
Professional Education, select the following:		
CI 4190	Practicum I	1

CI 4290	Practicum II	1
CI 4390	Practicum III	1
CI 4400	Reading In Middle Grades	3
RESM 4200	Classroom Assessment	3

Professional Education in Subject Matter, select TWO SETS form the following sets:

Language Arts		
CI 4320	Literature For Young Adults	3
CI 4050	Teaching Methods in Middle Grades English Language Arts	3
CI 4210	Advanced Teaching Methods in Middle Grades English Language Arts	3

Mathematics		
CI 4550	Teaching Problem Solving In Mathematics	3
CI 4060	Teaching Methods in Middle Grades Mathematics	3
CI 4220	Advanced Teaching Methods in Middle Grades Mathematics	3

Science		
CI 4680	The Nature of Science	3
CI 4070	Teaching Methods in Middle Grades Science	3
CI 4230	Advanced Teaching Methods in Middle Grades Science	3

Social Studies		
CI 4720	Best Practices for Teaching Social Studies	3
CI 4080	Teaching Methods in Middle Grades Social Studies	3
CI 4240	Advanced Teaching Methods in Middle Grades Social Studies	3

**Professional Education Internship\***

Select the following:

CI 4930	Internship/Student Teaching	9
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Select TWO of the following:

CI 4730	Seminar Managing the English Language Arts Classroom	3
CI 4740	Seminar: Managing the Mathematics Classroom	3
CI 4760	Seminar: Managing the Science Classroom	3
CI 4790	Seminar: Managing the Social Studies Classroom	3

\***Internship Eligibility:** The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- All professional courses completed with a C or higher
- Professional education courses GPA >2.7
- Completion of 90% of subject matter specializations
- Subject matter GPA >2.7
- Completion of 100 credits and 30 credits residency at UToledo
- UT GPA >2.7

**Additional Requirements**

Current BCI & FBI background checks are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (<http://www.oh.nesinc.com/>) (OAE) tests specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

**GUIDES FOR PLANNING BY CONCENTRATION**

Below are guides for developing a plan of study for each combination of concentrations for the BE in Middle Childhood Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

First Term		Hours
Subject A		3
Subject B		3
ENGL 1110	College Composition I	3
MATH 1210	Mathematics For Education Majors I	3
EDU 1000	Orientation To Education	1
University Core		3
<b>Hours</b>		<b>16</b>

Second Term		Hours
Subject A		3
Subject B		3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
EDU 1700	Introduction to Education	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
University Core		3
<b>Hours</b>		<b>18</b>

Third Term		Hours
Subject A		3
Subject B		3
CI 3400	Foundations of Literacy	3
EDP 3200	Applied Psychology For Teachers	3
University Core		3
University Core Lab		1
<b>Hours</b>		<b>16</b>

Fourth Term		Hours
Subject A		3
Subject B		3
Subject B		3
CI 3430	Phonics And Word Identification	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
<b>Hours</b>		<b>15</b>

Fifth Term		Hours
Subject A		3



EDP 4240	Classroom Engagement and Behavioral Supports	3
CI 4470	Literacy Assessment and Remediation	3
Subject A: CI 4320/4550/4680/4720		3
Subject B: CI 4320/4550/4680/4720		3
CI 4190	Practicum I	1

**Hours** **16**

#### Sixth Term

Subject A		3
Subject B		3
RESM 4200	Classroom Assessment	3
Methods A: CI 4050/4060/4070/4080		3
Methods B: CI 4050/4060/4070/4080		3
CI 4290	Practicum II	1

**Hours** **16**

#### Seventh Term

CI 4400	Reading In Middle Grades	3
TSOC 3000	Schooling And Democratic Society	3
Adv. Methods A: CI 4210/4220/4230/4240		3
Adv. Methods B: CI 4210/4220/4230/4240		3
CI 4390	Practicum III	1

**Hours** **13**

#### Eighth Term

CI 4930	Internship/Student Teaching	9
Seminar A: CI 4730/4740/4760/4790		3
Seminar B: CI 4730/4740/4760/4790		3

**Hours** **15**

**Total Hours** **125**

- PLO 1: Teacher candidates utilize content appropriate materials, instructional strategies, and student learning activities.
- PLO 2: Middle Childhood teacher candidates demonstrates knowledge of the content areas for which they have instructional responsibility.
- PLO 3: Teacher candidates can design learning environments that promote high levels of learning and achievement for all students.
- PLO 4: Teacher candidates can create plans for effective instruction that advances the learning of each individual student.
- PLO 5: Teacher candidates utilize varied assessments to inform instruction, evaluate and ensure student learning.
- PLO 6: Teacher candidates demonstrate they can collaborate and communicate with other educators, administrators, students, parents and the community to support student learning.
- PLO 7: Teacher candidates demonstrate that they can assume responsibility for professional growth, performance, and involvement as an individual, and as a member of a learning community.

## BE in Multi-Age Education

The Bachelor of Education in Multi-age Education is designed for students who wish to earn an initial Ohio teaching license at the undergraduate level in conjunction with a bachelor's degree. Students

in this program earn a bachelor's degree and complete requirements for an initial Ohio educator license in Multi-age Education for grades PreK through 12 in one subject-matter area. Subject-matter areas options include: art, music, and Spanish.

## Degree Requirements by Concentration

- Art (p. 604)
- Music: Choral (p. 605)
- Music: Instrumental (p. 607)
- Spanish (p. 608)

## Concentration in Art

For the Bachelor of Education degree, students must complete the following program requirements:

**University Undergraduate Core Curriculum:** 36 to 42 semester hours; university core curriculum courses may also fulfil specific program requirements listed below.

**Pre-professional Education:** A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

Code	Title	Hours
Select the following:		
AED 3100	Art Education for the Pre-Primary and Primary Child	3
AED 3300	Crafts In Art	3
EDU 1700	Introduction to Education	3
EDP 3200	Applied Psychology For Teachers	3
EDP 3290	Life Span Development	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3

### Supporting Coursework

Code	Title	Hours
Select the following:		
AR 1000	First Year Orientation	1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
EDP 4240	Classroom Engagement and Behavioral Supports	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

**Subject-matter Specialization:** A minimum GPA of 2.7 in the specialization is required.

Code	Title	Hours
Core Subject-matter in Art, select ALL of the following sets:		
<i>Art Foundations</i>		
ART 1050	Foundations of 2D Design	3
ART 1060	Foundations of 3D Design	3
ART 1080	Foundations of Drawing I	3
ART 1090	Foundations of Drawing II	3
<i>Studio Art</i>		
ART 1070	Foundations of Digital Media	3
ART 2030	Introduction to Photography	3
ART 2110	Introduction to Printmaking	3
ART 2200	Introduction to Sculpture	3
ART 2210	Introduction to Ceramics	3
Select ONE of the following:		
ART 2300	Introduction to Painting	3
ART 3100	Printmaking: Topics	3
ART 4100	Advanced Printmaking: Topic	3
<i>Art History</i>		
ARTH 2050	History of Western Art I	3
ARTH 2060	History of Western Art II	3
<i>Modern Art</i>		
Select ONE of the following		
ARTH 2080	History Of Modern Art	3
ARTH 3400	Contemporary Art	3
<i>Non-Western Art</i>		
Select ONE of the following:		
ARTH 2100		3
ARTH 2200	Ethnographic Art	3
ARTH 3250	Topics In Asian Art	3
ARTH 3300	African Art	3
ARTH 3350	Ancient Art Of The Americas	3

**Admission to Professional Education:** Admission is required prior to enrolling in Professional Education courses.

- Enrolled as a regular student in BE Multiage Education with a concentration in art education
- All pre-professional courses completed with a C or higher
- Pre-professional courses GPA of 2.7 or higher
- Subject-matter courses GPA of 2.7 or higher
- Minimum of 48 credits overall and 12 credits in residency at UToledo
- UT GPA of 2.7 or higher
- Higher education GPA of 2.7 or higher

**Professional Education:** Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7

in Professional Education coursework is required. Courses may not be transferred from another institution.

Code	Title	Hours
Professional Education, select the following:		
AED 3500	Innovations In Art Education	3
AED 4140	Art Education For The Special Child	3
AED 4450	Curriculum In Art Education	3
Professional Education Internship*		
AED 4900	Seminar In Professional Development	2
AED 4930	Student Teaching In Art (6 credits secondary, 6 credits elementary)	12

\*Internship Eligibility: The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- All professional courses completed with a C or higher
- Professional education courses GPA >2.7
- Completion of 90% of subject matter specializations
- Subject matter GPA >2.7
- Completion of 100 credits and 30 credits residency at UToledo
- UT GPA >2.7
- Higher education GPA >2.7

## Back to top of page (p. 604) Concentration in Music: Choral

For the Bachelor of Education degree, students must complete the following program requirements:

University Undergraduate Core Curriculum: 36 to 42 semester hours; university core curriculum courses may also fulfil specific program requirements listed below.

**Pre-professional Education:** A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

Code	Title	Hours
Select the following:		
MED 3000	Foundations Of Music Education	2
EDP 3200	Applied Psychology For Teachers	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3



**Supporting Coursework**

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
EDP 3290	Life Span Development	3
EDP 4240	Classroom Engagement and Behavioral Supports	3
MED 1000	Music Education Lab (taken 5 times)	0
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3
MUS 2220	History Of Jazz	3
MUS 2420	Cultures And Music Of Non-Western Styles	3

**Subject-matter Specialization:** A minimum GPA of 2.7 in the specialization is required.

Code	Title	Hours
<i>Core Subject-matter in Music, select the following:</i>		
MUS 1000	Performance Laboratory (taken 6 times)	0
MUS 1010	Concert Attendance (taken 6 times)	0
MUS 1100	Introduction To Music Technology	1
MUS 1570	Piano Class For Music Majors I	1
MUS 1580	Piano Class For Music Majors II	1
MUS 3410	Music History And Literature II	3
MUS 3420	Music History And Literature III	3
MUS 3500	Conducting	2
MUS 3810	Recital	1

*Applied Music*

A minimum grade of B or higher in each course is required.

Select the following for a total 14 credits:

MUS 1800	Applied Music (taken twice for two credits each in two semesters)	2
MUS 2800	Applied Music (taken twice for two credits each in two semesters)	2
MUS 3800	Applied Music (taken twice for two credits each in two semesters)	2
MUS 4800	Applied Music (taken once for two credits)	2

*Music Theory*

A minimum grade of C or higher in each course is required.

MUS 1610	Music Theory And Ear Training I	4
MUS 1620	Music Theory And Ear Training II	4
MUS 2610	Music Theory And Ear Training III	4
MUS 2620	Music Theory And Ear Training IV	4

*Choral*

Select the following:

MUS 1560	Instrumental Class	3
MUS 2530	Diction For Singers I	1

MUS 2540	Diction For Singers II	1
MUS 2570	Piano Class For Music Majors III	1
MUS 2580	Piano Class For Music Majors IV	1
MUS 3510	Choral Conducting	2
MUS 3550	Vocal Pedagogy and Literature 1	2

*Chamber Ensembles*

Select 2 credits of the following:

MUS 3050	Chamber Music Ensembles	1
MUS 3190	Lyric Theater Workshop	1

*Large Ensembles*

Select 7 credits of the following:

MUS 3130	University Chorus	1
MUS 3140	Concert Chorale	1
MUS 3160	Rocket Choristers	1
MUS 3170	Chamber Singers	1
MUS 3180	Glee Club	1

**Admission to Professional Education:** Admission is required prior to enrolling in Professional Education courses.

- Enrolled as a regular student in BE Multiage Education with a concentration in music education
- All pre-professional courses completed with a C or higher
- Pre-professional courses GPA of 2.7 or higher
- Subject-matter courses GPA of 2.7 or higher
- Minimum of 48 credits overall and 12 credits in residency at UToledo
- UT GPA of 2.7 or higher

**Professional Education:** Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.

Code	Title	Hours
Professional Education, select the following:		
MED 3310	Music For Children	3
MED 3320	Secondary School Vocal Methods For Music Majors	3
MED 3300	Professional Education Internship*	3
MED 4900	Student Teaching Seminar	2
MED 4930	Student Teaching (6 credits secondary, 6 credits elementary)	12

**\*Internship Eligibility:** The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- All professional courses completed with a C or higher
- Professional education courses GPA >2.7
- Completion of 90% of subject matter specializations

- [Subject matter GPA >2.7](#)
- [Completion of 100 credits and 30 credits residency at UToledo](#)
- [UT GPA >2.7](#)

TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3
MUS 2220	History Of Jazz	3
MUS 2420	Cultures And Music Of Non-Western Styles	3

**Additional Requirements**

Current BCI & FBI background checks are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (<http://www.oh.nesinc.com/>) (OAE) tests specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

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**CONCENTRATION IN MUSIC: INstrumental**

For the Bachelor of Education degree, students must complete the following program requirements:

University Undergraduate Core Curriculum: 36 to 42 semester hours; university core curriculum courses may also fulfil specific program requirements listed below.

Pre-professional Education: A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

Code	Title	Hours
Select the following:		
MED 3000	Foundations Of Music Education	2
EDP 3200	Applied Psychology For Teachers	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3

**Supporting Coursework**

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
EDP 3290	Life Span Development	3
EDP 4240	Classroom Engagement and Behavioral Supports	3
MED 1000	Music Education Lab (taken 5 times)	0

**Subject-matter Specialization: A minimum GPA of 2.7 in the specialization is required.**

Code	Title	Hours
<b>Core Subject-matter in Music, select the following:</b>		
MUS 1000	Performance Laboratory (taken 6 times)	0
MUS 1010	Concert Attendance (taken 6 times)	0
MUS 1100	Introduction To Music Technology	1
MUS 1570	Piano Class For Music Majors I	1
MUS 1580	Piano Class For Music Majors II	1
MUS 3410	Music History And Literature II	3
MUS 3420	Music History And Literature III	3
MUS 3500	Conducting	2
MUS 3810	Recital	1

*Applied Music*

A minimum grade of B or higher in each course is required.

Select the following for a total 14 credits:

MUS 1800	Applied Music (taken twice for two credits each in two semesters)	2
MUS 2800	Applied Music (taken twice for two credits each in two semesters)	2
MUS 3800	Applied Music (taken twice for two credits each in two semesters)	2
MUS 4800	Applied Music (taken once for two credits)	2

*Music Theory*

A minimum grade of C or higher in each course is required.

MUS 1610	Music Theory And Ear Training I	4
MUS 1620	Music Theory And Ear Training II	4
MUS 2610	Music Theory And Ear Training III	4
MUS 2620	Music Theory And Ear Training IV	4

*Instrumental*

Select the following:

MUS 1500	String Class	2
MUS 1510	Percussion Class	2
MUS 1530	Brass Class	2
MUS 1550	Woodwinds Class	2
MUS 2570	Piano Class For Music Majors III	1
MUS 3520	Instrumental Conducting	2
MUS 3530	Marching Band Techniques	1
MUS 3630	Instrumentation	3

*Chamber Ensembles*

Select two credits of the following:

MUS 3050	Chamber Music Ensembles	1
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*Large Ensembles*



Select 7 credits of the following:

MUS 3010	University Band (must be taken for a minimum of two credits)	2
MUS 3020	Jazz Ensemble	1
MUS 3040	University Wind Ensemble	1
MUS 3060	Symphonic Band	1
MUS 3090	University Orchestra	1

Note: String and keyboard students may take a field experience in place of an ensemble with faculty advisor approval

**Admission to Professional Education:** Admission is required prior to enrolling in Professional Education courses.

- [Enrolled as a regular student in BE Multiage Education with a concentration in music education](#)
- [All pre-professional courses completed with a C or higher](#)
- [Pre-professional courses GPA of 2.7 or higher](#)
- [Subject-matter courses GPA of 2.7 or higher](#)
- [Minimum of 48 credits overall and 12 credits in residency at UToledo](#)
- [UT GPA of 2.7 or higher](#)

**Professional Education:** Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.

Code	Title	Hours
Professional Education, select the following:		
MED 3310	Music For Children	3
MED 3320	Secondary School Vocal Methods For Music Majors	3
MED 3300	Professional Education Internship*	3
MED 4900	Student Teaching Seminar	2
MED 4930	Student Teaching (6 credits secondary, 6 credits elementary)	12

**\*Internship Eligibility:** The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- [All professional courses completed with a C or higher](#)
- [Professional education courses GPA >2.7](#)
- [Completion of 90% of subject matter specializations](#)
- [Subject matter GPA >2.7](#)
- [Completion of 100 credits and 30 credits residency at UToledo](#)
- [UT GPA >2.7](#)

### Additional Requirements

[Current BCI & FBI background checks are required prior to beginning classroom experiences.](#)

[Acceptable scores on all Ohio Assessment for Educators \(http://www.oh.nesinc.com/\) \(OAE\) tests specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.](http://www.oh.nesinc.com/)

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## Concentration in Spanish

For the Bachelor of Education degree, students must complete the following program requirements:

**University Undergraduate Core Curriculum:** 36 to 42 semester hours; university core curriculum courses may also fulfil specific program requirements listed below.

**Pre-professional Education:** A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

Code	Title	Hours
Select the following:		
EDU 1700	Introduction to Education	3
EDP 3200	Applied Psychology For Teachers	3
EDP 3290	Life Span Development	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3

### Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
EDP 4240	Classroom Engagement and Behavioral Supports	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

**Subject-matter Specialization:** A minimum GPA of 2.7 in the specialization is required.



Code	Title	Hours
Core Subject-matter in Spanish, select the the following:		
SPAN 3000	Spanish Grammar	3
SPAN 3010	Conversation And Composition I	3
SPAN 3020	Conversation And Composition II	3
Supporting Subject-matter, select ALL of the following sets:		
Culture		
Select ONE of the following:		
SPAN 3410	Spanish Culture And Civilization	3
SPAN 3420	Latin American Civilization	3
Linguistics		
Select ONE of the following:		
SPAN 4010	Syntax And Stylistics	4
SPAN 4110	Introduction To Spanish Linguistics	4
Literature		
Select TWO of the following:		
SPAN 3210	Survey Of Spanish Literature I	3
SPAN 3270	Survey Of Latin American Literature I	3
SPAN 3220	Survey Of Spanish Literature II	3
SPAN 3280	Survey Of Latin American Literature II	3
Spanish Electives		
Select 12 credits of the following:		
SPAN 2140	Intermediate Spanish I	3
SPAN 2150	Intermediate Spanish II	3
SPAN 3170	Business Spanish	3
SPAN 4000	Advanced Spanish Grammar	3
SPAN 4060	Translation & Interpretation In Spanish	3
SPAN 4070	History Of The Spanish Language	3
SPAN 4190	Study Abroad	1-12
SPAN 4250	Latin American Short Story	3
SPAN 4260		3
SPAN 4270		3
SPAN 4830	Hispanic Cinema	3
SPAN 4910	Honors Research In Spanish	3

**Admission to Professional Education: Admission is required prior to enrolling in Professional Education courses.**

- Enrolled as a regular student in BE Multiage Education with a concentration Spanish education
- All pre-professional courses completed with a C or higher
- Pre-professional courses GPA of 2.7 or higher
- Subject-matter courses GPA of 2.7 or higher
- Minimum of 48 credits overall and 12 credits in residency at UToledo
- UT GPA of 2.7 or higher

**Professional Education: Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7**

**in Professional Education coursework is required. Courses may not be transferred from another institution.**

Code	Title	Hours
Professional Education, select the following:		
CI 4140	Teaching Methods For Foreign Languages	3
CI 4190	Practicum I	1
RESM 4200	Classroom Assessment	3
SPAN 4120	Teaching Colloquia	3
Professional Education Internship*		
CI 4430		3
CI 4930	Internship/Student Teaching	9

**\*Internship Eligibility: The following conditions must be met to be eligible to enroll in Professional Education Internship courses.**

- All professional courses completed with a C or higher
- Professional education courses GPA >2.7
- Completion of 90% of subject matter specializations
- Subject matter GPA >2.7
- Completion of 100 credits and 30 credits residency at UToledo
- UT GPA >2.7

**Additional Requirements**

Current BCI & FBI background checks are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (<http://www.oh.nesinc.com/>) (OAE) tests specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

## Back to top of page (p. 604) GUIDES FOR PLANNING BY CONCENTRATION

Below are guides for developing a plan of study for each concentration for the BE in Multi-age Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

- Art (p. 609)
- Music: Choral (p. 605)
- Music: Instrumental (p. 607)
- Spanish (p. 612)

### Guide for Art

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

First Term		Hours
ART 1050	Foundations of 2D Design	3
ART 1080	Foundations of Drawing I	3



ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
AR 1000	First Year Orientation	1
Arts and Humanities Core		3
<b>Hours</b>		<b>16</b>

**Second Term**

ART 1060	Foundations of 3D Design	3
ART 1090	Foundations of Drawing II	3
ARTH 2050	History of Western Art I	3
AED 3100	Art Education for the Pre-Primary and Primary Child	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
<b>Hours</b>		<b>15</b>

**Third Term**

ART 1070	Foundations of Digital Media	3
ART 2030	Introduction to Photography	3
AED 3300	Crafts In Art	3
EDP 3200	Applied Psychology For Teachers	3
Art Elective		3
<b>Hours</b>		<b>15</b>

**Fourth Term**

ART 2110	Introduction to Printmaking	3
ART 2200	Introduction to Sculpture	3
ARTH 2060	History of Western Art II	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
Natural Science Core		3
Natural Science Core Lab		1
<b>Hours</b>		<b>16</b>

**Fifth Term**

ART 2210	Introduction to Ceramics	3
EDP 3290	Life Span Development	3
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
AED 4450	Curriculum In Art Education	3
Social Science Core and Diversity in US		3
<b>Hours</b>		<b>15</b>

**Sixth Term**

EDP 4240	Classroom Engagement and Behavioral Supports	3
AED 4140	Art Education For The Special Child	3
Natural Science Core		3
Electives		5
<b>Hours</b>		<b>14</b>

**Seventh Term**

Art Elective in Non-western Art		3
Art Elective in Modern Art		3
TSOC 3000	Schooling And Democratic Society	3

AED 3500	Innovations In Art Education	3
Social Science Core		3
<b>Hours</b>		<b>15</b>

**Eighth Term**

AED 4900	Seminar In Professional Development	2
AED 4930	Student Teaching In Art	12
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>120</b>

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## GUIDE FOR MUSIC: Choral

[Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.](#)

### Multi-Age Education (Pre K-12) - Music Education, Choral Concentration, BE

First Term	Hours	
EDU 1000	Orientation To Education	1
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1570	Piano Class For Music Majors I	1
MUS 1610	Music Theory And Ear Training I	4
MUS 1800	Applied Music	2
MUS 2220	History Of Jazz	3
MUS 2530	Diction For Singers I	1
Large Ensemble		1
MATH 1180	Reasoning With Mathematics	3
ENGL 1110	College Composition I	3
<b>Hours</b>		<b>19</b>

**Second Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1100	Introduction To Music Technology	1
MUS 1580	Piano Class For Music Majors II	1
MUS 1620	Music Theory And Ear Training II	4
MUS 1800	Applied Music	2
MUS 2420	Cultures And Music Of Non-Western Styles	3
MUS 2540	Diction For Singers II	1
Large Ensemble		1
SPED 2040	Perspectives In The Field Of Exceptionalities	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
<b>Hours</b>		<b>19</b>

**Third Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1560	Instrumental Class	3
MUS 2570	Piano Class For Music Majors III	1

MUS 2610	Music Theory And Ear Training III	4
MUS 2800	Applied Music	2
Large Ensemble		1
EDP 3200	Applied Psychology For Teachers	3
MED 1000	Music Education Lab	0
Arts and Humanities Core		3
University Core Elective		3
<b>Hours</b>		<b>20</b>

**Fourth Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2410	Music History And Literature I: World Music And Jazz	3
MUS 2580	Piano Class For Music Majors IV	1
MUS 2620	Music Theory And Ear Training IV	4
MUS 2800	Applied Music	2
Large Ensemble		1
MED 1000	Music Education Lab	0
MED 3000	Foundations Of Music Education	2
Social Sciences Core		3
Natural Science Core		3
<b>Hours</b>		<b>19</b>

**Fifth Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 3410	Music History And Literature II	3
MUS 3500	Conducting	2
MUS 3800	Applied Music	2
Large Ensemble		1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
EDP 3290	Life Span Development	3
MED 1000	Music Education Lab	0
MED 3310	Music For Children	3
<b>Hours</b>		<b>17</b>

**Sixth Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 3420	Music History And Literature III	3
MUS 3510	Choral Conducting	2
MUS 3550	Vocal Pedagogy and Literature 1	2
MUS 3800	Applied Music	2
Large Ensemble		1
MED 1000	Music Education Lab	0
MED 3300		3
University Core Elective		3
Social Science Core		3
<b>Hours</b>		<b>19</b>

**Seventh Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 3810	Recital	0
MUS 4800	Applied Music	2
Large Ensemble		1
EDP 4240	Classroom Engagement and Behavioral Supports	3
TSOC 3000	Schooling And Democratic Society	3
MED 1000	Music Education Lab	0
MED 3320	Secondary School Vocal Methods For Music Majors	3
Natural Science Core		3
Natural Science Core Lab		1
<b>Hours</b>		<b>16</b>

**Eighth Term**

MED 4900	Student Teaching Seminar	2
MED 4930	Student Teaching (elementary)	6
MED 4930	Student Teaching (secondary)	6
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>143</b>

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## Guide for Music: Instrumental

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

### Multi-Age Education (Pre K-12) - Music Education, Instrumental Concentration, BE

<b>First Term</b>		<b>Hours</b>
EDU 1000	Orientation To Education	1
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1570	Piano Class For Music Majors I	1
MUS 1610	Music Theory And Ear Training I	4
MUS 1800	Applied Music	2
MUS 2220	History Of Jazz	3
MUS 3010	University Band	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
<b>Hours</b>		<b>18</b>

**Second Term**

MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1100	Introduction To Music Technology	1
MUS 1580	Piano Class For Music Majors II	1
MUS 1620	Music Theory And Ear Training II	4
MUS 1800	Applied Music	2
MUS 2420	Cultures And Music Of Non-Western Styles	3



Large Ensemble		1	MUS 3630	Instrumentation	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3	MUS 3800	Applied Music	2
Arts and Humanities Core		3	EDP 4240	Classroom Engagement and Behavioral Supports	3
<b>Hours</b>		<b>18</b>	MED 1000	Music Education Lab	0
<b>Third Term</b>			MED 3300		3
MUS 1000	Performance Laboratory	0	University Core Elective		3
MUS 1010	Concert Attendance	0	<b>Hours</b>		<b>18</b>
MUS 1500	String Class	2	<b>Seventh Term</b>		
MUS 2570	Piano Class For Music Majors III	1	MUS 1000	Performance Laboratory	0
MUS 2610	Music Theory And Ear Training III	4	MUS 1010	Concert Attendance	0
MUS 2800	Applied Music	2	MUS 3580		2
MUS 3010	University Band	1	MUS 3810	Recital	0
MUS 3410	Music History And Literature II	3	MUS 4800	Applied Music	2
EDP 3200	Applied Psychology For Teachers	3	Large Ensemble		1
MED 1000	Music Education Lab	0	CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
Social Science Core		3	TSOC 3000	Schooling And Democratic Society	3
<b>Hours</b>		<b>19</b>	MED 1000	Music Education Lab	0
<b>Fourth Term</b>			MED 3320	Secondary School Vocal Methods For Music Majors	3
MUS 1000	Performance Laboratory	0	University Core Elective		3
MUS 1010	Concert Attendance	0	<b>Hours</b>		<b>17</b>
MUS 1530	Brass Class	2	<b>Eighth Term</b>		
MUS 2620	Music Theory And Ear Training IV	4	MED 4900	Student Teaching Seminar	2
MUS 2800	Applied Music	2	MED 4930	Student Teaching (elementary)	6
MUS 3420	Music History And Literature III	3	MED 4930	Student Teaching (secondary)	6
Large Ensemble		1	<b>Hours</b>		<b>14</b>
MED 1000	Music Education Lab	0	<b>Total Hours</b>		<b>141</b>
MED 3000	Foundations Of Music Education	2			
Natural Sciences Core		3			
Natural Science Core Lab		1			
<b>Hours</b>		<b>18</b>			
<b>Fifth Term</b>					
MUS 1000	Performance Laboratory	0			
MUS 1010	Concert Attendance	0			
MUS 1550	Woodwinds Class	2			
MUS 3500	Conducting	2			
MUS 3800	Applied Music	2			
Large Ensemble		1			
EDP 3290	Life Span Development	3			
SPED 2040	Perspectives In The Field Of Exceptionalities	3			
MED 1000	Music Education Lab	0			
MED 3310	Music For Children	3			
Social Sciences Core		3			
<b>Hours</b>		<b>19</b>			
<b>Sixth Term</b>					
MUS 1000	Performance Laboratory	0			
MUS 1010	Concert Attendance	0			
MUS 1510	Percussion Class	2			
MUS 3510	Choral Conducting	2			

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## GUIDE FOR SPANISH

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

First Term	Hours	
EDU 1000	Orientation To Education	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
SPAN 3000	Spanish Grammar	3
Arts and Humanities Core		3
Social Science Core		3
<b>Hours</b>		<b>16</b>

**Second Term**

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
SPAN 3010	Conversation And Composition I	3
Arts and Humanities Core		3
Natural Science Core		3
Natural Science Core Lab		1
<b>Hours</b>		<b>16</b>

**Third Term**

EDU 1700	Introduction to Education	3
EDP 3200	Applied Psychology For Teachers	3
TSOC 3000	Schooling And Democratic Society	3
Spanish Elective		3
Natural Science Core		3
<b>Hours</b>		<b>15</b>

**Fourth Term**

SPED 2040	Perspectives In The Field Of Exceptionalities	3
Spanish Elective in Literature		3
Spanish Elective		3
Diversity of US		3
Social Sciences Core		3
<b>Hours</b>		<b>15</b>

**Fifth Term**

SPAN 3020	Conversation And Composition II	3
SPAN 4120	Teaching Colloquia	3
EDP 3290	Life Span Development	3
Spanish Elective in Literature		3
Spanish Elective		3
<b>Hours</b>		<b>15</b>

**Sixth Term**

Spanish Elective in Culture		3
Spanish Elective in Linguistics		3
Spanish Elective		3
Non-US Diversity		3
Elective		3
<b>Hours</b>		<b>15</b>

**Seventh Term**

CI 4140	Teaching Methods For Foreign Languages	3
CI 4190	Practicum I	1
CI 4490	Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach	3
EDP 4240	Classroom Engagement and Behavioral Supports	3
RESM 4200	Classroom Assessment	3
Elective		3
<b>Hours</b>		<b>16</b>

**Eighth Term**

CI 4430		3
CI 4930	Internship/Student Teaching	9
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

- PLO 1. Demonstrate personal music performance skills and skills in sight-singing, ear-training, piano, improvisation, and composition to a level of proficiency and expertise necessary to pursue a career in music education. Standard #1: Language, Linguistics, Comparisons Teacher candidates can: 1a) Speak in the interpersonal mode of communication at a minimum level of "Advanced Low" (French, German, and Spanish) or "Intermediate High" (Chinese) on the ACTFL Oral Proficiency Interview (OPI). 1b) Interpret oral, printed, and video texts by demonstrating both literal and figurative or symbolic comprehension. 1c) Present oral and written information to audiences of listeners or readers, using language at a minimum level of "Advanced Low" (French, German, and Spanish) or "Intermediate High" (Chinese).
- PLO STANDARD #2: Cultures, Literatures, Cross-Disciplinary Concepts Teacher candidates can 2a) Demonstrate target cultural understandings and compare cultures through perspectives, products, and practices of those cultures. 2b) Demonstrate understanding of linguistics and the changing nature of language, and compare language systems. 2c) Demonstrate understanding of texts on literary and cultural themes as well as interdisciplinary topics.
- PLO STANDARD #3: Language Acquisition Theories and Instructional Practices Teacher candidates can 3a) Demonstrate an understanding of key principles of language acquisition and create linguistically and culturally rich learning environments. 3b) Demonstrate an understanding of child and adolescent development to create a supportive learning environment for each student.
- PLO STANDARD #4: Integration of Standards into Curriculum and Instruction Teacher candidates can 4a) Demonstrate an understanding of the Standards for Foreign Language Learning in the 21st Century or their recently refreshed version World-Readiness Standards for Learning Languages (2015) and their state standards and use them as the basis for instructional planning. 4b) Integrate the goal areas of the Standards for Foreign Language Learning in the 21st Century or their recently refreshed version World-Readiness Standards for Learning Languages (2015) and their state standards in their classroom practice. 4c) Use the Standards for Foreign Language Learning in the 21st Century or their recently refreshed version World-Readiness Standards for Learning Languages (2015) and their state standards to select and integrate authentic texts, use technology, and adapt and create instructional materials for use in communication.
- PLO STANDARD #5: Assessment of Languages and Cultures Teacher candidates can 5a) Design and use ongoing authentic performance assessments using a variety of assessment models for all learners, including diverse students. 5b) Reflect on and analyze the results of student assessments, adjust instruction accordingly, and use data to inform and strengthen subsequent instruction. 5c) Interpret and report the results of student performances to all stakeholders in the community, with particular emphasis on building student responsibility for their own learning.



- PLO STANDARD #6: Professionalism Teacher candidates can
  - Engage in ongoing professional development opportunities that strengthen their own linguistic, cultural and pedagogical competence and promote reflection on practice.
  - Articulate the role and value of languages and cultures in preparing all students to interact in the global community of the 21st century through collaboration and advocacy with all stakeholders.
  - Use inquiry and reflection to understand and explain the opportunities and responsibilities inherent in being a professional language educator and demonstrate a commitment to equitable and ethical interactions with all students, colleagues and other stakeholders.
  - Students apply their understandings of student learning and diversity to their creation of visual Arts lesson plans.
  - Students demonstrate their competence in visual art techniques, history, and applications.
  - Students design and apply varied and effective assessments to their evaluation of their students learning.
  - Students plan and organize educational environments that promote learning and empathy.
  - Students maintain professionalism in their self-presentation and in their relationships with colleagues.

## BE in Special Education

The Bachelor of Education in Special Education is designed for students who wish to earn an initial Ohio teaching license at the undergraduate level in conjunction with a bachelor's degree. Students in this program earn a bachelor's degree and complete requirements for an initial Ohio educator license in Intervention Specialist for grades K through 12. Intervention Specialist options include: mild/moderate or moderate/intensive educational needs. Students are prepared to work with children and youth with specific learning disabilities, cognitive disabilities, autism, physical and health impairments, attention deficit and hyperactivity disorders, emotional disturbance, and communication and language difficulties.

## Degree Requirements

For the Bachelor of Education degree, students must complete the following program requirements:

**University Undergraduate Core Curriculum:** 36 to 42 semester hours; university core curriculum courses may also fulfil specific program requirements listed below.

**Pre-professional Education:** A grade of C or higher in each course and a minimum GPA of 2.7 in pre-professional education courses is required.

Code	Title	Hours
Select the following:		
EDU 1700	Introduction to Education	3
CI 3400	Foundations of Literacy	3
CI 3430	Phonics And Word Identification	3
EDP 3200	Applied Psychology For Teachers	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
SPED 3130	Linguistic Analysis	3

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3

### Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4470	Literacy Assessment and Remediation	3
AED 4140	Art Education For The Special Child	3
EDP 3290	Life Span Development	3
EDP 4240	Classroom Engagement and Behavioral Supports	3
ETPT 2020	Technology And Multimedia In Educational Environments	3
SPED 3670	American Sign Language I	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

**Subject-matter Specialization:** A minimum GPA of 2.7 in the specialization is required.

Code	Title	Hours
Select ALL of the sets below:		
Language Arts		
Select ONE of the following:		
ENGL 2710	Reading Fiction	3
ENGL 2720	Reading Drama	3
ENGL 2730	Reading Poetry	3
ENGL 2800	Writing About Literature	3
ENGL 3790	Foundations Of Literary Study	3
HON 2020	Multicultural Literatures: The North American Experience-Honors-WAC	3
HON 2030	Multicultural Literatures: The Non-European World-Honors-WAC	3
Select ONE of the following:		
ENGL 3730	Folklore	3
ENGL 3750	Women And Literature - Writing Across the Curriculum	3
ENGL 4650	African American Writers Before The 20th Century	3
ENGL 4660	African American Literature In The 20th and 21st Century	3
ENGL 4690	Native American Literature And Culture	3
Science		
Select ONE of the following:		
ASTR 1010	Survey Of Astronomy	3
BIOL 2010	Major Concepts In Biology	3
CHEM 1100	Chemistry And Society	3
EEES 1130	Down To Earth: Environmental Science	3

PHYS 1100	Our Physical World - Matter & Energy	3
Social Studies		
Select ONE of the following:		
HIST 1010	Europe To 1600	3
HIST 1110	African Civilization	3
HIST 1120	Middle East Civilization	3
HIST 2010	America To 1865	3
HIST 2020	America From 1865	3
Select ONE of the following:		
ANTH 1020	Introduction To Anthropology	3
ANTH 2750	World Archaeology	3
ANTH 2800	Cultural Anthropology	3
ECON 1010	Introduction To Economic Issues	3
ECON 1150	Principles Of Macroeconomics	3
ECON 1200	Principles Of Microeconomics	3
Select ONE of the following:		
GEPL 1100	Environmental Sustainability	3
PSC 1200	American National Government	3
SOC 2640	Race, Class, And Gender	3
SOCW 1030	Introduction To Social Welfare	3

**Admission to Professional Education:** Admission is require prior to enrolling in Professional Education courses.

- [Enrolled as a regular student in the BE in Special Education with a concentration in mild/moderate or moderate/intensive](#)
- [All pre-professional courses completed with a C or higher](#)
- [Pre-professional courses GPA of 2.7 or higher](#)
- [Subject-matter courses GPA of 2.7 or higher](#)
- [Minimum of 48 credits overall and 12 credits in residency at UToledo](#)
- [UT GPA of 2.7 or higher](#)

**Professional Education:** Admission to professional education is required. A grade of C or higher in each course and a minimum GPA of 2.7 in Professional Education coursework is required. Courses may not be transferred from another institution.

Code	Title	Hours
Professional Education, select the following:		
RESM 4200	Classroom Assessment	3
CI 4400	Reading In Middle Grades	3
SPED 4060	Specialized Intervention In Infancy And Early Childhood	3
SPED 4100	Practicum in Special Education (Two semesters for a total of 2 credits)	1
SPED 4110	Curriculum And Methodology For Students With Moderate Educational Needs	3
SPED 4250	Transition Process from High School to Post-Secondary Settings for Students with Disabilities	3

SPED 4260	Family And Professional Partnership In Special Education	3
SPED 4340	Effective Management Of Students With Special Needs In Educational Settings	3
SPED 4450	Methods of Teaching Students With Emotional Disturbance	3
Professional Education in Intervention, select ONE SET from the following sets:		
Mild-Moderate		
SPED 4370	Curriculum And Methods For Students With Mild Educational Needs	3
Moderate-Intensive		
SPED 4120	Curriculum And Methodology For Students With Intensive Educational Needs	3
SPED 4210	AAC for Young Children with Disabilities	3
Professional Education Internship*, select the following:		
SPED 4600	Professional Reflective Seminar	3
SPED 4930	Internship/Student Teaching In Special Education	9

\***Internship Eligibility:** The following conditions must be met to be eligible to enroll in Professional Education Internship courses.

- [All professional courses completed with a C or higher](#)
- [Professional education courses GPA of 2.7 or higher](#)
- [Completion of 90% of subject matter specializations](#)
- [Subject matter GPA of 2.7 or higher](#)
- [Completion of 100 credits and 30 credits residency at UToledo](#)
- [UT GPA of 2.7 or higher](#)

## Guide for Planning

Below is a guide for developing a plan of study for the Bachelor of Education. Students should review their degree audit and work with their advisor to identify specific courses to fulfill program requirements.

First Term	Hours
Subject-matter Elective in Science	3
Subject-matter Elective in Social Studies	3
ENGL 1110 College Composition I	3
MATH 1180 Reasoning With Mathematics	3
EDU 1000 Orientation To Education	1
Arts and Humanities Core and Non-US Diversity	3
<b>Hours</b>	<b>16</b>
Second Term	Hours
ENGL 1130 College Composition II: Academic Disciplines And Discourse	3
SPED 2040 Perspectives In The Field Of Exceptionalities	3
EDU 1700 Introduction to Education	3
ETPT 2020 Technology And Multimedia In Educational Environments	3
<b>Hours</b>	<b>12</b>
Third Term	Hours
Subject-matter Elective in Language Arts	3



Subject-matter Elective in Science	3
Natural Science Core Lab	1
CI 3400 Foundations of Literacy	3
EDP 3200 Applied Psychology For Teachers	3
SPED 3130 Linguistic Analysis	3
<b>Hours</b>	<b>16</b>
<b>Fourth Term</b>	
Subject-matter Elective in Social Studies	3
AED 2100 Art Education for the Pre-Primary and Primary Child	3
SPED 3670 American Sign Language I	3
CI 3430 Phonics And Word Identification	3
Natural Science Core	3
<b>Hours</b>	<b>15</b>
<b>Fifth Term</b>	
Subject-matter Elective in Social Studies	3
EDP 3290 Life Span Development	3
SPED 4110 Curriculum And Methodology For Students With Moderate Educational Needs	3
SPED 4260 Family And Professional Partnership In Special Education	3
SPED 4100 Practicum in Special Education	1
TSOC 3000 Schooling And Democratic Society	3
<b>Hours</b>	<b>16</b>
<b>Sixth Term</b>	
CI 4470 Literacy Assessment and Remediation	3
EDP 4240 Classroom Engagement and Behavioral Supports	3
SPED 4340 Effective Management Of Students With Special Needs In Educational Settings	3
SPED 4100 Practicum in Special Education	1
University Core	3
Select ONE of the following:	3
SPED 4120 Curriculum And Methodology For Students With Intensive Educational Needs	
SPED 4370 Curriculum And Methods For Students With Mild Educational Needs	
<b>Hours</b>	<b>16</b>
<b>Seventh Term</b>	
CI 4400 Reading In Middle Grades	3
RESM 4200 Classroom Assessment	3
SPED 4060 Specialized Intervention In Infancy And Early Childhood	3
SPED 4250 Transition Process from High School to Post-Secondary Settings for Students with Disabilities	3
SPED 4450 Methods of Teaching Students With Emotional Disturbance	3

SPED 4210 AAC for Young Children with Disabilities (For Moderate/Intensive Only OR Elective for Mild/Moderate Only)	2-3
<b>Hours</b>	<b>17-18</b>
<b>Eighth Term</b>	
SPED 4600 Professional Reflective Seminar	3
SPED 4930 Internship/Student Teaching In Special Education	9
<b>Hours</b>	<b>12</b>
<b>Total Hours</b>	<b>120-121</b>

- PLO 1. Beginning special education professionals understand how exceptionalities may interact with development and learning and use this knowledge to provide meaningful and challenging learning experiences for individuals with exceptionalities. 1.1 Beginning special education professionals understand how language, culture, and family background influence the learning of individuals with exceptionalities. 1.2 Beginning special education professionals use understanding of development and individual differences to respond to the needs of individuals with exceptionalities.
- PLO 2. Beginning special education professionals create safe, inclusive, culturally responsive learning environments so that individuals with exceptionalities become active and effective learners and develop emotional well-being, positive social interactions, and self-determination. 2.1 Beginning special education professionals through collaboration with general educators and other colleagues create safe, inclusive, culturally responsive learning environments to engage individuals with exceptionalities in meaningful learning activities and social interactions. 2.2 Beginning special education professionals use motivational and instructional interventions to teach individuals with exceptionalities how to adapt to different environments. 2.3 Beginning special education professionals know how to intervene safely and appropriately with individuals with exceptionalities in crisis.
- PLO 3. Beginning special education professionals use knowledge of general and specialized curricula to individualize learning for individuals with exceptionalities. 3.1 Beginning special education professionals understand the central concepts, structures of the discipline, and tools of inquiry of the content areas they teach, and can organize this knowledge, integrate cross-disciplinary skills, and develop meaningful learning progressions for individuals with exceptionalities. 3.2 Beginning special education professionals understand and use general and specialized content knowledge for teaching across curricular content areas to individualize learning for individuals with exceptionalities. 3.3 Beginning special education professionals modify general and specialized curricula to make them accessible to individuals with exceptionalities.
- PLO 4. Beginning special education professionals use multiple methods of assessment and data-sources in making educational decisions. 4.1 Beginning special education professionals select and use technically sound formal and informal assessments that minimize bias. 4.2 Beginning special education professionals use knowledge of measurement principles and practices to interpret assessment results and guide educational decisions for individuals with exceptionalities. 4.3 Beginning special education professionals in collaboration with colleagues and families use multiple types of assessment information in making decisions about individuals



with exceptionalities. 4.4 Beginning special education professionals engage individuals with exceptionalities to work toward quality learning and performance and provide feedback to guide them.

- PLO 5. Beginning special education professionals select, adapt, and use a repertoire of evidence-based instructional strategies to advance learning of individuals with exceptionalities. 5.1 Beginning special education professionals consider an individual's abilities, interests, learning environments, and cultural and linguistic factors in the selection, development, and adaptation of learning experiences for individual with exceptionalities. 5.2 Beginning special education professionals use technologies to support instructional assessment, planning, and delivery for individuals with exceptionalities. 5.3 Beginning special education professionals are familiar with augmentative and alternative communication systems and a variety of assistive technologies to support the communication and learning of individuals with exceptionalities. 5.4 Beginning special education professionals use strategies to enhance language development and communication skills of individuals with exceptionalities. 5.5 Beginning special education professionals develop and implement a variety of education and transition plans for individuals with exceptionalities across a wide range of settings and different learning experiences in collaboration with individuals, families, and teams. 5.6 Beginning special education professionals teach to mastery and promote generalization of learning. 5.7 Beginning special education professionals teach cross-disciplinary knowledge and skills such as critical thinking and problem solving to individuals with exceptionalities.
- PLO 6. Beginning special education professionals use foundational knowledge of the field and their professional Ethical Principles and Practice Standards to inform special education practice, to engage in lifelong learning, and to advance the profession. 6.1 Beginning special education professionals use professional Ethical Principles and Professional Practice Standards to guide their practice. 6.2 Beginning special education professionals understand how foundational knowledge and current issues influence professional practice. 6.3 Beginning special education professionals understand that diversity is a part of families, cultures, and schools, and that complex human issues can interact with the delivery of special education services. 6.4 Beginning special education professionals understand the significance of lifelong learning and participate in professional activities and learning communities. 6.5 Beginning special education professionals advance the profession by engaging in activities such as advocacy and mentoring. 6.6 Beginning special education professionals provide guidance and direction to paraeducators, tutors, and volunteers.
- PLO 7. Beginning special education professionals collaborate with families, other educators, related service providers, individuals with exceptionalities, and personnel from community agencies in culturally responsive ways to address the needs of individuals with exceptionalities across a range of learning experiences. 7.1 Beginning special education professionals use the theory and elements of effective collaboration. 7.2 Beginning special education professionals serve as a collaborative resource to colleagues. 7.3 Beginning special education professionals use collaboration to promote the well-being of individuals with exceptionalities across a wide range of settings and collaborators.

## Faculty

### Department of Teacher Education

**Rhonda Aguiton**, 2019, Associate lecturer, Diploma, The University of the West Indies; A.A. Community College of Allegheny County; B.Ed. University of New Brunswick; M. Ed. Bowling Green State University; Ph.D. The University of Toledo

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### Department of Educational studies

**Svetlana Beltyukova**, 2005, Professor, Ph.D., Kiev Linguistic University; M.E., Ph.D., The University of Toledo

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**Edward Janak**, 2015, Professor, chair, B.A. State University of New York College at Fredonia; M.Ed. University of South Carolina-Columbia; Ph.D. University of South Carolina-Columbia

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**Revathy Kumar**, 2001, Professor, B.Sc., University of Bombay; B.Ed., M.Ed., Bangalore University; M.A., Annamalia University; Ph.D., University of Michigan

**Snejana Slantcheva-Durst**, 2007, Professor, M.A., Sofia University; M.B.A., American University in Bulgaria; Ph.D. University of Massachusetts Amherst

**Dale T. Snauwaert**, 2003, Professor, B.A., University of Illinois at Chicago; Ed.M., Ph.D., University of Illinois at Urbana - Champaign

**Gregory E. Stone**, 2002, Professor, B.A., Shimer College; M.A., Loyola University of Chicago; Ph.D., The University of Chicago

**Berhane Teclehaimanot**, 2001, Professor, B.A., St. Louis University; M.Ed.; Ph.D., The University of Toledo

**Michael Toland**, 2020, Professor, executive director, B.S., University of Wisconsin-Eau Claire; Ph.D., University of Nebraska-Lincoln; Ph.D. University of Nebraska-Lincoln

**Randall S. Vesely**, 2011, Associate professor, B.A., University of Wisconsin Green Bay; M.S., Ph.D., University of Wisconsin Milwaukee

## University College

### UNDERGRADUATE Catalog 2024-2025

University College, Rocket Hall, Room 1300  
419.530.3142  
universitycollege@utoledo.edu

## Mission Statement

University College's mission is to provide the foundation for learner-focused services and transformational educational initiatives.

## Population Served

University College offers programs in two departments; the Department of Interdisciplinary and Special Programs, and the Department of Exploratory Studies. Through our two departments, University College serves students who meet any **one** of the following criteria:

- Individuals with diverse interests and career goals that are not being met by existing UT degree programs;
- Individuals who are working, have busy lifestyles or are place bound and desire a non-traditional approach to completing a college degree;
- 24 years of age or above;
- Students who are exploring college majors;
- Students who are working to meet the admission requirements of a specific program/college; and
- Non-degree seeking students.

## Contacts

### Administration

Shannon Neumann, Associate Vice Provost for Academic Success & Engagement  
Phone: 419-530-5678  
shannon.neumann@utoledo.edu

Matt Reising, Program Manager  
Phone: 419.530.6235  
matthew.reising@utoledo.edu (kimberly.pollauf@utoledo.edu)

For additional information on University College staff, go to the University College website at [www.utoledo.edu/UC/](http://www.utoledo.edu/UC/) (<http://www.utoledo.edu/uc/>).

## Degrees Offered

Department of Interdisciplinary and Special Programs (p. 621)

- Associate of Arts in General Studies (A.A.) (p. 623)
- Associate of Technical Studies (A.T.S.) (p. 624)
- Individualized Studies (B.A. or B.S.) (p. 626)
- Liberal Studies (B.A.) (p. 625)

## Academic Policies

The University of Toledo Policy Website (<http://www.utoledo.edu/policies/>) offers access to all relevant policy, operational procedures, governing documents and handbooks for The University of Toledo. The University College Standard Operating Procedures outlined below govern the administration of University College programs and services in compliance with the UToledo Academic Undergraduate Policies.

### Declaring /Changing Majors

Students in good standing who wish to change from University College to another prospective college should make an appointment with a college advisor in the University College Student Services Office to discuss their intended transfer and have their academic records reviewed. All college requirements, including core and distributive as well as major and related requirements, must be fulfilled as specified in the catalog for the year in which the student enters the college of their choice. Some colleges have selective admission or deadlines for an intended major. These deadlines are strictly enforced.

### Required academic performance

Student must maintain a 2.0 grade point average to remain in academic good standing within University College.

### Academic Alert

Students with less than 30 UToledo GPA hours and with less than a 2.0 UToledo cumulative GPA will receive an Academic Alert. An Academic Alert serves as an early alert to below-average academic performance. Students who receive an Academic Alert are required to enroll in a University-sponsored academic recovery program the following semester. The program is designed to provide students with the skills and support necessary to improve academically.

### Academic Warning

Students will be placed on Academic Warning when their cumulative GPA has dropped below 2.0, and they have 30 or more UToledo GPA cumulative semester hours.

In successive semesters, students with a cumulative UToledo GPA below 2.0 will remain on Academic Warning. Students will be removed from Academic Warning when their cumulative UToledo GPA is 2.0 or greater.

A student on Academic Warning is required to fulfill requirements to remain eligible for registration. These requirements include, but are not limited to, participation in a University-sponsored academic recovery program, regular attendance in courses, utilizing University tutoring and/or other student success initiatives.

### Academic Suspension

Students must be given a minimum of one semester on Academic Warning prior to being placed on academic suspension. Students may remain on Academic Warning as long as their semester GPA is above 2.0 and their cumulative GPA is below 2.0. If a student's semester GPA and cumulative GPA both fall below 2.0 after a semester on Academic Warning, a student may be suspended.

University College follows The University of Toledo's Academic Standing Policy (<http://www.utoledo.edu/policies/academic/undergraduate/>)



pdfs/3364-71-01%20Academic%20standing.pdf) as it pertains to suspension and attempted credit hours.

## Academic Dismissal

Students who have been suspended previously for one year, who have been reinstated and now are facing suspension again will be academically dismissed for three years.

## Reinstatement - University College Students

Students who have been suspended from another academic college at The University of Toledo will not be reviewed until they have served their academic suspension from that college.

## Reinstatement Procedure

All reinstatement documentation must be submitted by the student to the University College email address at [universitycollege@utoledo.edu](mailto:universitycollege@utoledo.edu). Consult your advisor for further details. Students who have active holds on their account will not be reviewed until those holds are cleared.

## Review of Reinstatement Documentation

All documentation is reviewed by the Academic Review Committee. The decision of approval/denial of appeals will be sent from the University College email account to the student's University email account. If denied, students may petition for reinstatement in a future term. Students approved for reinstatement may additionally be required to complete non-credit workshops or programs designed to help ensure their academic success.

# Undergraduate Academic Policies

Refer to UT Policy website (<http://www.utoledo.edu/policies/>) (<http://www.utoledo.edu/policies/>) for academic policies that apply to all students:

3364-71-01 Academic standing (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-01%20Academic%20standing.pdf>)

3364-71-02 Enrollment status: full time, part time, and audit (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-02%20Enrollment%20status.pdf>)

3364-71-03 Class rank (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-03%20Class%20rank.pdf>)

3364-71-04 Academic dishonesty (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-04%20%20Academic%20dishonesty.pdf>)

3364-71-05 Academic grievance (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-05%20%20Academic%20grievance.pdf>)

3364-71-05.1 Academic grievance procedure (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-05-1%20Academic%20Grievance%20Procedure.pdf>)

3364-71-06 Academic forgiveness (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-06%20%20Academic%20forgiveness.pdf>)

3364-71-07 Repeating a course and calculating GPA (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-07%20%20Repeating%20a%20course%20and%20recalculation%20of%20GPA.pdf>)

3364-71-08 Adding and/or dropping a course (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-08%20%20Adding%20or%20dropping%20a%20course.pdf>)

3364-71-09 Dual degrees (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-09%20Dual%20degrees.pdf>)

3364-71-10 Residency requirement for a degree (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-10%20%20Residency%20requirement%20for%20a%20degree.pdf>)

3364-71-11 Grades and grading (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-11%20%20Grades%20and%20grading.pdf>)

3364-71-11.1 Grades, quality points and grading procedures (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-11-1-Grades-Quality-Points-Procedure.pdf>)

3364-71-12 Priority registration (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-12%20%20Priority%20registration.pdf>)

3364-71-13 Graduation with honors distinction; Dean's list; President's list (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-13%20%20Graduation%20with%20honors%20distinction.pdf>)

3364-71-14 Missed class policy (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-14%20Missed%20class%20policy.pdf>)

3364-71-15 Confidentiality of student records (FERPA) (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-15%20%20Confidentiality%20of%20student%20records.pdf>)

3364-71-16 Administrative adjustment for extenuating circumstances (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-16%20Administrative%20adjustment%20for%20extenuating%20circumstance.pdf>)

3364-71-17 Credit for prior learning (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-17%20%20Credit%20for%20Prior%20Learning%20Policy.pdf>)

3364-71-18 Veteran and service members support and assistance ([https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364\\_71\\_18.pdf](https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364_71_18.pdf))

3364-71-19 Posthumous degree awards (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-19.pdf>)

3364-71-20 International baccalaureate diploma (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-20.pdf>)

3364-71-21 Diploma replacement (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-21-diploma-replacement.pdf>)

3364-71-22 Semester academic calendar and academic year (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-22-Semester-academic-calendar-and-academic-year.pdf>)

3364-71-23 Academic credit hour (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-23-Academic-credit-hour.pdf>)

3364-71-24 Military veterans benefits management (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-24-military-veterans-benefits-management.pdf>)

3364-71-25 Independent study courses (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-25-independent-study-courses.pdf>)

3364-71-26 Internal surveys (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-26-internal-surveys.pdf>)

3364-71-27 Classroom attendance (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-27-classroom-attendance-policy.pdf>)

3364-71-28 The University of Toledo SROTC housing financial offset incentive policy (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-28-UT-SROTC-housing-financial-offset-incentive-policy.pdf>)

3364-71-29 Guidelines on authorship policy (<https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-29%20Guidelines%20on%20Authorship%20Policy.pdf>)

3364-72-54 Assessment of student learning ([https://www.utoledo.edu/policies/academic/faculty\\_staff/pdfs/3364-72-54-assessment-of-student-learning.pdf](https://www.utoledo.edu/policies/academic/faculty_staff/pdfs/3364-72-54-assessment-of-student-learning.pdf))

## Student Services

Emily Shinaver, Interim Director  
419.530.3142  
[emily.downes@utoledo.edu](mailto:emily.downes@utoledo.edu)

The Department of Student Services provides services and support in a respectful and transformational environment. Our staff is committed to assisting students in the transition to college life and serving as advocates during their college journey while establishing a foundation for successful learning and career development. Our Academic Advisors provide the following services:

- Career and major exploration;
- assistance with course scheduling;
- Proactive student outreach;
- Support University College programming and functions;
- campus and community resources and referrals; and
- supportive staff to help navigate campus resources and services:
  - Blackboard;
  - Enrollment assistance;
  - Library support; and
  - MyUT Portal.

## Program 60

Program 60 provides educational experiences at reduced rates to individuals 60 years of age or older who have resided in Ohio for at least the last 12 consecutive months. Enrollment is limited to space availability which is determined on the last day of the regular registration period. Students must meet all course prerequisites to enroll.

The University of Toledo provides tuition scholarships for adults enrolled in Program 60 who wish to audit college courses. Program 60 participants do not receive college credit through enrollment in the program. Students must apply for admission and register to audit courses through University College. All Program 60 participants are responsible for any additional fees such as the cost of textbooks, general

fees, lab fees, technology fees, faculty fees, special service fees, online course fees, library, parking, and other fees.

Program 60 students are not eligible to enroll in an independent study course, studio art courses, private music lessons or other similar courses where a course or section number is required to be created.

## Department of Interdisciplinary and Special Programs

Matt Reising, M.A., M.Ed  
Program Manager  
419-530-6235  
[matthew.reising@utoledo.edu](mailto:matthew.reising@utoledo.edu) ([kimberly.pollauf@utoledo.edu](mailto:kimberly.pollauf@utoledo.edu))

The Individualized Studies program within University College allows the student to design their own bachelor's degree program.

A degree pathway is created based upon individual academic interests and career goals. This degree option may be of interest to adult learners, college transfers or military veterans who may also earn credit for college-level volunteer, academic, work, military and/or life experiences.

### FRESHMEN ORIENTATION

All new University College students who have not already completed a comparable University of Toledo orientation course are required to complete UC 1000.

### PASS/NO CREDIT GRADES

The option of a Pass/No Credit Grade is not available to a University College Bachelor's Degree Student unless this is the only grading option for the course. However, a grade of Pass obtained while a student was enrolled in another college may be transferred to University College provided it is applicable to the student's new program

## ADMISSION TO THE DEPARTMENT OF INTERDISCIPLINARY AND SPECIAL PROGRAMS DEGREE PROGRAMS

General Studies (associate's degree) and Liberal Studies (bachelor's degree) accept students without college credit, but require a high school diploma or GED and a minimum high school GPA of 2.0 (if applicable). For students who have earned college credit, a minimum GPA of 2.0 is required for admission.

## TRANSFERRING INTO THE DEPARTMENT OF INTERDISCIPLINARY AND SPECIAL PROGRAMS (ISP) DEGREE PROGRAMS

Students wishing to transfer into ISP degree programs must meet the minimum entrance requirements of The University of Toledo. Students wishing to transfer into any ISP baccalaureate program must have a minimum cumulative 2.0 higher education GPA (i.e., combined GPA for all coursework taken at post-secondary institutions) and a minimum 2.0 UT GPA, if applicable. The Individualized Studies program requires completion of 20 semester-hours of college credit and a cumulative 2.0 GPA to transfer. Students who do not meet this GPA requirement can be

admitted to the College's Department of Exploratory Studies and work toward meeting the admission requirements for the degree programs. Courses from an approved institution may be used, as applicable, toward a student's program of study. However, the maximum number of effective transferable credits is 90 semester-hours for all Baccalaureate degrees. A maximum of 81 hours at the 1000 or 2000 level can be applied to the Individualized Studies or Liberal Studies degrees. The General Section of this catalog has information on admission and transfer.

## Admission to earn a Second bachelor's Degree

A graduate of an accredited institution of higher education may apply to University College for a second bachelor's degree. An acceptable program of study in this case entails a minimum of 30 semester hours of additional work. **Any student who has earned a bachelor's degree from University College in an Individualized or University Studies program may not earn a second degree in an Individualized or University Studies program.**

## Degrees Offered

- Associate of Arts in General Studies (p. 623)
- Associate of Technical Studies (p. 624)
- Individualized Studies (B.A. or B.S.) (p. 626)
- Liberal Studies (p. 625)

The University of Toledo offers all students of exceptional academic ability the opportunity to enter a special program of academic rigor and challenge. For further details on the Honors Program, students should contact their advisor(s). Students who have demonstrated exceptional promise may be invited to participate in University College Honors. These students' programs will be developed in close conjunction with the college honors advisor. The minimum requirements for consideration for the University College Honors Program are 20 hours of completed course work and at least a 3.3 cumulative GPA.

### AL 3500 Fundamentals of Interdisciplinary Research

[3 credit hours]

This course is designed as a foundational course for University College for all University Studies (UNVI) and Liberal Studies degree program students. It is the required prerequisite course for students needing to take the Senior Capstone (AL 4950 or AL 4940) courses. It is a review of the research process course designed for undergraduate students majoring in all disciplines. It emphasizes the fundamentals of conducting college-level research and the practice of writing about and properly citing that process.

### AL 4940 Field Experiences and Internship

[4 credit hours]

The purpose of this class is to provide a culminating experience of self-reflection, academic research, and critical thinking as an experiential-learning capstone to your multi-disciplinary University College undergraduate degree program. The overall objective is that you design a professional portfolio that reflects this learning experience. AL 4940 is completed under the guidance of the instructor of record and it must be completed prior to graduation. Permit required.

**Term Offered:** Spring, Summer, Fall

### AL 4950 Senior Capstone

[4 credit hours]

The purpose of this class is to provide a culminating integrative experience of self-reflection, academic research, and critical thinking as a capstone to your multi-disciplinary University College undergraduate degree program. This course will result in a Senior Final Project – an Annotated Bibliography and a Multimedia Presentation of your research - in which you will learn, practice and demonstrate skills that will prove your proficiency and facility with the research process. Students will design a Capstone Project based upon research related to an area of concentration.

**Term Offered:** Spring, Summer, Fall

### ALS 3040 Topical Seminar: Social Sciences

[4 credit hours]

Focus on topics of general interest to liberal arts students with particular reference to tools, concepts and analytical methods of social scientists. Jr. Standing required and completion of Comp. II, or permission of instructor.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 1160 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### ALS 3050 Topical Seminar: Humanities

[4 credit hours]

Focus of general interest in humanities; writing and communication; religious, philosophical and ideological traditions; traditional and performing arts. Jr. Standing required and completion of Comp. II, or permission of instructor.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 1160 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ALS 3060 Topical Seminar: Natural Sciences**

[4 credit hours]

Topics of general interest that consider scientific problem solving in such areas as biology, chemistry, geology, astronomy, physics, mathematics and statistics. Jr. Standing required and completion of Comp. II, or permission of instructor.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 1160 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**UC 0910 Rocket Reboot**

[0 credit hours]

Rocket Reboot is an academic recovery program for students receiving their first academic alert to support each student on the path to graduation.

**UC 0920 Rocket Recharge**

[0 credit hours]

Rocket Recharge is an academic recovery program for all students on academic warning. The course is designed to infuse necessary skills and mentorship to avoid further academic discipline.

**UC 0930 New Beginnings**

[0 credit hours]

New Beginnings is a financial literacy course for all participants in the program returning from financial hardship. This course is a non-graded course for registration into that program.

**Term Offered:** Spring, Summer, Fall**UC 1000 Orientation**

[1 credit hour]

An orientation to college for incoming first year students. It is designed to equip students with tools for academic success.

**Term Offered:** Spring, Fall**UC 1010 Study Abroad Orientation**

[0 credit hours]

This course focuses on the theory and practice of interacting with or living and studying in other cultures that are different. This course provides the students with an informed cross-cultural perspective and the critical thinking skills necessary for a successful experience. Students will gain an understanding of the concept of culture, cross-cultural communication skills, as well as practical tools for making the most of an intercultural experience, including study abroad. The course is of particular relevance for students who plan on participating in experiential learning, where they will engage with people from other cultures. This could be a study abroad or faculty-led program experience, but it could also be an internship or volunteer experience. The expectation is that students engage with and follow the course throughout the semester, complete the assignments, examine and think critically about the material and participate class discussions, and affirm with their overall engagement that they have made a proactive choice to be in the course. Qualified students may have the opportunity to take part in a CISP-organized experiential learning trip to an international destination.

**Term Offered:** Spring, Fall**UC 1120 Career And Self-Evaluation**

[2 credit hours]

This course offers an opportunity to explore two important considerations in choosing a career: (1) career opportunities and requirements, (2) individual interests, abilities, skills, needs, values and goals. Students will have opportunities to develop a resume, complete career and interest assessments, investigate a variety of majors at UT and create a personalized career action plan.

**Term Offered:** Spring, Summer, Fall**UC 1130 Information Literacy for College Research**

[3 credit hours]

This course will provide information literacy skills specific to accessing sources and materials appropriate for university level research. Students will acquire a broader knowledge of library services and resources. Additionally, students will learn to apply research logic in order to utilize library catalogs, electronic databases, the World Wide Web, and print resources. By building experiential knowledge, students will gain an understanding of information creation, dissemination, and applications through utilizing various research strategies and scholarly communication.

**Term Offered:** Fall

Core Arts &amp; Humanities

**UC 1150 Orientation: Strategies for College Success**

[3 credit hours]

Acquaints students with the services, policies, procedures and layout of the University, along with relevant study skills and student learning services available campus-wide. Required of all pre-major students; optional for others.

**UC 1940 Learning Through Service**

[2 credit hours]

Students will be involved four hours a week in various community service projects and analyze and reflect on their experiences through journals, discussion and a final paper in a weekly seminar (local, domestic and International).

**UC 2980 Special Topics**

[1-4 credit hours]

Special Topics is an opportunity to create and pilot potential courses at a 2000 level.

**Term Offered:** Spring, Summer, Fall**UC 4980 Special Topics**

[1-4 credit hours]

Topics of interest to University College students offered by various instructors. Open to any University College student.

## Associate of Arts in General Studies

### Associate of Arts in General Studies (A.A. GENS)

The Associate of Arts degree is a sixty-hour program that allows students to complete UToledo core curriculum classes and incorporate classes from baccalaureate majors that they are interested in exploring. The Associate of Arts in General Studies requires the completion of 36 semester hours of UToledo Core credit that is aligned with the Ohio Transfer 36 (<https://transfercredit.ohio.gov/educational-partners/educational-partner-initiatives/ohio-transfer-36/>). It also requires an additional 24 semester hours which must be completed in 1000-2000 level classes chosen by the student to support transfer to

a baccalaureate degree program, or fulfil personal interests. Students may elect to enroll for entry-level classes in the major of choice and fulfill program pre-requisites through the completion of these hours. Students must complete 15 hours at the University of Toledo to earn the Associate degree.

Many popular majors like criminal justice, communication, and psychology have a series of classes at the 1000-2000 level that must be completed by all majors and these classes align perfectly with the General Studies curriculum. Students will also have the benefit of completing an intermediate credential as they work towards earning the Bachelor's degree, which may aid in persistence and retention to graduation at a higher level. At a minimum, students will have completed a suite of transferable classes that may apply to nearly all baccalaureate degrees.

Information about the programs and services available to students enrolling in the Associate of Arts in General Studies is available through the University College website (<http://www.utoledo.edu/uc/>)

A minimum cumulative grade-point average of 2.0 (on a 4.0 scale) is required for admission to the Associate of Arts program. Students entering the program directly from high school may also qualify with a minimum score of 19 ACT/800+ SAT/88+ NEW SAT. Transfer students must have a 2.0 cumulative GPA. The University of Toledo requirements for the TOEFL must also be fulfilled for admission of international students. For additional information on admissions, visit The University (<http://www.utoledo.edu/admission/>) of Toledo Admissions website. (<http://www.utoledo.edu/admission/>)

## Associate of Arts in General Studies (AA GENS)

- Minimum of 60 semester-hours for graduation
- 36 hours of UT Core which are also Ohio Transfer 36
- 24 hours at 1000-2000 level chosen by student (non-technical)
- Includes 15 hours residency requirement at The University of Toledo (Academic Policy 3364-71-10)
- A cumulative 2.0 GPA is required for graduation, along with 2.0 in UT Core courses

Code	Title	Hours
ENGL 1110	College Composition I	3
Select one of the following English Courses: 3		
ENGL 1130	College Composition II: Academic Disciplines And Discourse	
ENGL 2950	Technical Writing	
ENGL 2960	Professional and Business Writing	
MATH 1180	Reasoning With Mathematics (or Higher)	3
Two Social Sciences Core		6
Two Arts/Humanities Core		6
Two Natural Sciences Core, one with lab		7
Diversity of US		3
Non-US Diversity		3
BUAD 1020	Micro-Computer Applications In Business	3

or CMPT 1100 Microsoft Office Applications

Select 24 semester hours of 1000-2000 level non-technical classes <sup>1</sup> 24

**Total Hours** 61

<sup>1</sup> An additional 24 semester hours of 1000-2000 level non-technical classes chosen by the student to support transfer to a Baccalaureate degree program, or fulfill personal interests. Students may elect to enroll for entry-level classes in the major of choice and fulfill program pre-requisites through the completion of these hours.

## Associate of Technical Studies

The Associate of Technical Studies degree (ATS) is a degree completion option for transfer or returning students who have completed up to 30 semester hours of technical course work at the 1000-2000 level, but have not earned a degree.

The format of this flexible Associate degree enables students to apply their previously completed technical coursework and then supplement that technical background with the UT Core requirements common to baccalaureate degrees while earning the Associate degree.

There is no Direct from High School (DHS) admission to the Associate of Technical Studies. Admission as a transfer student requires a 2.0 cumulative GPA.

## Associate of Technical Studies (ATS TECS)

- Minimum of 60 semester-hours for graduation
- 21 hours of OTM/UT Core and 9 hrs. OTM electives
- 24-30 hours of Technical Electives at 1000-2000 level
- Includes 15 hours residency requirement at The University of Toledo prior to graduation per Academic Policy 3364-71-10
- A cumulative 2.0 GPA is required for graduation, along with 2.0 in UT Core courses

### Requirements

Code	Title	Hours
ENGL 1110	College Composition I	3
Select one of the following English Classes: 3		
ENGL 1130	College Composition II: Academic Disciplines And Discourse	
ENGL 2950	Technical Writing	
ENGL 2960	Professional and Business Writing	
One Social Sciences Core		3
One Arts/Humanities Core		3
One Natural Sciences Core		3
BUAD 1020	Micro-Computer Applications In Business	3
or CMPT 1100 Microsoft Office Applications		
MATH 1180	Reasoning With Mathematics (or higher)	3
OTM UT Core Electives		9



Technical Electives	30
<b>Total Hours</b>	<b>60</b>

## Liberal Studies

Adult students, 24 years of age or older, may earn the Bachelor of Arts in Liberal Studies (LS) degree by completing a broad, liberal arts-based curriculum. A minimum of 120 semester hours is required for the LS degree. Courses in this program are scheduled online to facilitate attendance by those having other full-time responsibilities. The Liberal Studies program was approved to be an accelerated degree program for adults with an alternative core curriculum that includes the minimum required hours with a different distribution of required classes. Students benefit from a wide scope of special topic seminar classes that are student driven. These classes explore events and attitudes through critical thinking and interaction with other adult students. Students less than 24 years of age at the time of admission may be accepted at the discretion of the Assistant Dean of University College.

Students begin by enrolling in general education courses and completing College Composition I and II. In conjunction with individual advising, students are introduced to research in the liberal studies by emphasizing processes that build effective critical thinking and writing as foundations. Students progress to topical seminars that utilize the foundational skills developed earlier in the program. Students choose a concentration related to an area that meets their professional or personal goals. Students take an active role in determining the direction and content of their learning. This program can also serve as a degree completion option for those with existing college credit.

Graduates apply the broad educational value of the Liberal Studies program to employment opportunities in all business, industry, and service sectors. Many choose to pursue advanced degrees in law, health, and other areas of special interest.

## Online Option

The Liberal Studies (LS) program seminars can be completed entirely online. Minimum computer skills are advised for online courses, such as internet navigation, Blackboard, email, and basic knowledge of Microsoft Office.

Admission requirements for the Liberal Studies (LS) program are as follows:

New Students - must be 24 years of age or older, and have either a high school grade point average of 2.0 or a 19 on the ACT.

Transfer Students - must be 24 years of age or older and have a cumulative college grade point average of 2.0 or higher from all post-secondary institutions or be Active Military/Veteran.

## Bachelor of Arts in Liberal Studies

- 120 semester-hours for graduation
- Ability to substitute CLEP for UT Core requirements
- Required Concentration and Senior Capstone
- Includes 30 hours residency requirement prior to graduation at The University of Toledo per Academic Policy 3364-71-10

- A cumulative 2.0 GPA is required for graduation, along with 2.0 in UToledo Core classes.

## CLEP SCORES for Liberal Studies (LS) Degree:

Students may have the potential to take the College Level Examination Program (CLEP). These examinations are given to establish competency in the UT Core discipline areas of mathematics, humanities, and social sciences. These three discipline areas are required for graduation. The required UT Core credit hours and the regulations for the CLEP exams for this program are as follows:

1. Students earning a CLEP exam score ([http://www.utoledo.edu/offices/registrar/student\\_records/clep\\_exams.html](http://www.utoledo.edu/offices/registrar/student_records/clep_exams.html)) ([http://www.utoledo.edu/offices/registrar/student\\_records/clep\\_exams.html](http://www.utoledo.edu/offices/registrar/student_records/clep_exams.html)) below the required minimum, or those choosing not to take the math CLEP exam, must earn a minimum of 3 semester hours of credit in a math UT Core course. A minimum of 9 semester hours each of credit in UT Core courses in the areas of the humanities, social science, and natural science are required. Independent studies may not be substituted for any UT Core course;
2. Students who take any introductory courses in these three discipline areas after entry into the Adult Liberal Studies program forfeit their right to apply CLEP credit in that discipline toward their Liberal Studies degree. In addition, passing scores on the UT Core courses are required as prerequisites to enroll in the Liberal Studies topical seminars. Therefore, students are encouraged to take the CLEP exams early in their academic endeavors;
3. Students who have taken course work in any of these discipline areas prior to entry into the Adult Liberal Studies program, and subsequently earn CLEP credit, cannot have credit for both count toward meeting UT Core requirements;
4. Students earning the required minimum CLEP score will have 10 semester hours of credit posted to their transcripts; and
5. Students earning a CLEP exam score within five points of the required minimum score may retake the exam after a period of six months.

## Topical Seminars

These seminars are upper-division courses in the social sciences (ALS 3040), humanities (ALS 3050) and natural sciences (ALS 3060) that change each semester. Each student will complete two seminars from each of the three areas. Students may then choose to complete an additional three ALS seminars, or select 12 hours of course work (four classes) at the 3000-4000 level that support their academic interests.

**No more than ten ALS seminars will be counted toward fulfillment of graduation requirements.** The final requirement of the Liberal Studies program is completion of the AL 4950 Senior Capstone class. Students are responsible for fulfilling the program's prerequisites and should seek an academic advisor's guidance before enrolling in courses. Students who enroll in a topical seminar without the required prerequisites may be administratively dropped from the course. Students must complete a minimum of 30 semester hours of credit as a University College degree program student.

## Prerequisites for the Topical Seminars

1. Earned credits in College Composition I and II by taking and passing the courses or earning credit through PLA; and
2. Completion of a minimum of 9 credit hours in the discipline area of the topical seminar or passing the CLEP examination in the discipline of the seminar.
3. Sixty semester hours of earned credit or permission of the instructor.

## Electives

Students are to establish an emphasis area that ties together their educational interests and/or career aspirations. The objective of these courses should be academic investigation and should focus on sound educational goals. Students should seek the advice of an academic advisor in drafting their elective course components.

## Area of Concentration

Students are required to complete a minimum of three classes (9 hours) that are associated with an area of academic investigation or a knowledge base that is related in theoretical content to support the Senior Capstone.

## Senior Capstone

AL 3500, Fundamentals of Interdisciplinary Research, is the prerequisite to AL 4950 and focuses on developing the research skills needed for successful completion of the Senior Capstone.

AL 4950, Senior Capstone, is the final requirement of the LS program. It is a 4 credit hour project undertaken with a faculty member who serves as the capstone advisor. Students should seek the advice of an academic advisor and must turn in the appropriate paperwork before enrolling in this final requirement. Students are expected to integrate their respective thesis themes with their concentration courses.

## Liberal Studies Plan of Study

Code	Title	Hours
<b>UToledo Core</b>		
One Math course or CLEP Test		3
English Comp I		3
English Comp II		3
<b>University College Core</b>		
AL 3500	Fundamentals of Interdisciplinary Research	3
Arts/Humanities Core or CLEP		9-10
Social Sciences Core or CLEP		9-10
Natural Sciences Core or CLEP		9-10
BUAD 1020	Micro-Computer Applications In Business	3
or CMPT 1100	Microsoft Office Applications	
<b>Liberal Studies Core</b>		
Two classes in each seminar area		24
ALS 3040	Topical Seminar: Social Sciences	
ALS 3050	Topical Seminar: Humanities	
ALS 3060	Topical Seminar: Natural Sciences	
Three additional ALS seminars or four classes at the 3000-4000 level		12
Three concentration classes		9
AL 4950	Senior Capstone	4

## Electives <sup>1</sup>

Select 26 – 29 hours of electives in consultation with adviser 26-29

**Total Hours** 120

<sup>1</sup> Many of these may be fulfilled by transfer credit if applicable.

The Liberal Studies Honors program provides a valuable foundation of writing and research for students who want to be admitted into advanced graduate or professional programs or for those wanting a stimulating learning experience. Any student qualifying for College Honors in Liberal Studies needs to complete 27-33 Honors hours with a final 3.3 GPA or better to graduate with College Honors.

- PLO 1. Upon successful completion of this program LS students will be able to create an original multimedia project based on research in one of three areas of concentration: humanities, social sciences, or natural sciences. (The research project will incorporate developing research ideas, producing a thesis statement, composing a proposal, creating a schedule, evaluating sources, properly using APA citation style, compiling an annotated bibliography and designing and sharing with colleagues a multimedia presentation of their research.)
- PLO 2. Upon successful completion of this program LS students will be able to analyze assumptions, evaluate connecting explanations and establish the relevance of positions taken.
- PLO 3. Upon successful completion of this program LS students will be able to use appropriate, relevant and compelling content to illustrate and integrate central concepts.
- PLO 4. Upon successful completion of this program LS students will be able to investigate the significance and limitations of selected data, apply research methods and present research findings that demonstrate mastery of a selected subject area.

## Individualized Studies (B.A. or B.S.)

An Individualized Studies program of study is based on a student's unique interests and goals which would not be addressed by a traditional program of study. The degree awarded is either the Bachelor of Arts or the Bachelor of Science, depending upon the focus of the program. The designated major is Individualized Studies.

An Individualized Studies program of study requires the following:

- The program must be interdisciplinary or intercollegiate in nature (broad in scope, incorporating more than one discipline);
- The program must not duplicate an existing program of study in another college of the university; and
- The student's objectives must be clearly stated and must align with courses identified for achieving these objectives.

Working with the academic advisor, a University College student will be guided through the design of his/her Individualized Studies program. Each Individualized Studies program of study is reviewed and approved by the Program Review Committee. This Committee also determines that the program of study meets all undergraduate degree requirements. Once the Individualized Studies program is approved, **prior written approval is necessary to make any course substitutions.** If the Committee denies

an Individualized Studies program of study, a student may appeal the decision through established University College procedures.

NOTE: Students may take no more than thirty (30) semester hours of course work from the John B. and Lillian E. Neff College of Business and Innovation, and also no more than 18 credit hours courses from any one department, unless the student has departmental approval towards an Individualized Studies program of study.

Individualized Studies is a valuable option for degree completion for many students. It is particularly valuable for students with associate's degrees and/or those who bring a variety of credits earned. Students enjoy the benefits of flexibility, individual attention to their needs, personalized advising, access to all of The University of Toledo's academic resources, and the ability to select classes that meet their academic interests and career goals.

Graduates of the Individualized Studies program find jobs in the specific fields to which their studies are geared. They have the ability to succeed in the arts, in government agencies, and in business organizations. Also, many students choose to continue their education in graduate and professional programs.

Admission to the Individualized Studies program within University College requires a 2.0 cumulative college grade point average from all post-secondary institutions attended and 20 earned semester hours (30 quarter hours); direct from high school students are not eligible for admission to Individualized Studies.

## Bachelor of Arts in Individualized Studies Requirements

Code	Title	Hours
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics (or higher)	3
	Diversity of US and Non-US Diversity	6
	Arts/Humanities Core	6
	Social Sciences Core	6
	Natural Science Core, from different disciplines, one with lab	7
BUAD 1020	Micro-Computer Applications In Business	3
	or CMPT 1100 Microsoft Office Applications	
	English literature or WAC <may also count as Humanities>	3
	Philosophy <may also count as Humanities>	3
	Select one class of the following <may also count as Social Science>:	3
	ECON	
	US Political Science	
	US History	
	Select one class of the following <may also count as Social Science>:	3
	ANTH	
	GEPL	
	PSY	
	SOC	
	Communication <may also count as Humanities of Social Science>	3

Thirty-nine hours must be completed at the 3000-4000 level by the time of graduation		39
AL 4950	Senior Capstone	4

The Program must contain at least 30 semester-hours of course work that is distinct from any existing major at UToledo. No more than six classes from any one department may be incorporated without that department's permission. Students must create a Plan of Study and submit for approval by end of second semester in program. Hours needed in the University Studies program depend on the individual student record and situation. The information lists the requirements towards the minimum number of 120 approved semester hours, or more depending on the approved program of study, needed for the degree.

## Bachelor of Science in Individualized Studies Requirements

Code	Title	Hours
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics (or higher)	3
	Diversity of US and Non-US Diversity	6
	Arts/Humanities Core	6
	Social Sciences Core	6
	Natural Science, two disciplines, one with lab	7
BUAD 1020	Micro-Computer Applications In Business	3
	or CMPT 1100 Microsoft Office Applications	
	English literature or WAC <may also count as Humanities>	3
	Philosophy <may also count as Humanities>	3
	Select one class of the following <may also count as Social Science>:	3
	ECON	
	US Political Science	
	US History	
	Select one class of the following <may also count as Social Science>:	3
	ANTH	
	GEPL	
	PSY	
	SOC	
	Communication <may also count as Humanities of Social Science>	3
Thirty-nine hours must be completed at the 3000-4000 level by the time of graduation		39
AL 4950	Senior Capstone	4

This Program must contain at least 30 semester-hours of course work that is distinct from any existing major at UToledo. No more than six classes from any one department may be incorporated without that department's permission. Students must create a Plan of Study and submit for approval by end of second semester in the University Studies program. Hours needed in the program depend on individual student record and situation. The information lists the requirements towards the minimum number of 120 approved semester hours, or more depending on the approved program of study, needed for the degree.



Qualifications for BS degree:

- Twenty-five percent (25%) of course work applying toward degree must be completed in one of the following areas:
  - Natural Sciences,
  - Mathematics,
  - Computer Sciences and/or
  - Health Education.
- A minimum of twelve to fifteen (12-15) semester-hours of course work at the 3000-4000 level in the above areas must also be completed.

### Individualized Studies, B.A.

Code	Title	Hours
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics (or higher)	3
	Diversity of US and Non-US Diversity	6
	Arts/Humanities Core	6
	Social Sciences Core	6
	Natural Science Core, from different disciplines, one with lab	7
BUAD 1020	Micro-Computer Applications In Business	3
	or CMPT 1100 Microsoft Office Applications	
	English literature or WAC <may also count as Humanities>	3
	Philosophy <may also count as Humanities>	3
	Select one class of the following <may also count as Social Science>:	3
	ECON	
	US Political Science	
	US History	
	Select one class of the following <may also count as Social Science>:	3
	ANTH	
	GEPL	
	PSY	
	SOC	
	Communication <may also count as Humanities of Social Science>	3
	Thirty-nine hours must be completed at the 3000-4000 level by the time of graduation	39
AL 4950	Senior Capstone	4

### Individualized Studies, B.S.

Code	Title	Hours
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics (or higher)	3
	Diversity of US and Non-US Diversity	6
	Arts/Humanities Core	6
	Social Sciences Core	6
	Natural Science Core, from different disciplines, one with lab	7
BUAD 1020	Micro-Computer Applications In Business	3
	or CMPT 1100 Microsoft Office Applications	

English literature or WAC <may also count as Humanities>	3	
Philosophy <may also count as Humanities>	3	
Select one class of the following <may also count as Social Science>:	3	
ECON		
US Political Science		
US History		
Select one class of the following <may also count as Social Science>:	3	
ANTH		
GEPL		
PSY		
SOC		
Communication <may also count as Humanities of Social Science>	3	
Forty-two hours must be completed at the 3000-4000 level by the time of graduation	42	
AL 4950	Senior Capstone	4

- PLO 1. The student will design his/her course of study to articulate the personal and professional goals to be achieved.
- PLO 2. The student will also provide an explanation of how the program integrates the learning outcomes desired by the student, along with an assessment of which classes best meet the determined needs.
- PLO 3. The student will be able to relate their program of study to the larger plan they have developed for their lives and careers.
- PLO 4. The student will be able to articulate how the learning outcomes support specific objectives to be achieved.
- PLO 5. The student will solve problems specific to their area of study.
- PLO 6. The student will be able to apply discipline-based information to larger contexts.
- PLO 7. The student will extend the knowledge and skills learned in coursework through a Senior Capstone that can be completed as a field experience, internship, or project in an area related to their program of study. Students will develop a project that synthesizes the learning outcomes acquired.

## Department of Exploratory Studies

**Matt Reising, M.A., M.Ed.**

Program Manager

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The Department of Exploratory Studies serves as an entry point to The University of Toledo for students who are exploring college majors or working to meet the admission requirements of a specific program/college. It also offers services to enhance a student's transition to the university setting and become successful in their academic pursuits. The Department of Exploratory Studies includes services for non-degree seeking students, Pre-major students, Exploratory Studies students, College Credit Plus, and the QUEST students who are undecided on their major.

### Student Exploring Majors

The QUEST Program ensures that students who are undecided on a major and are exploring their options have access to the resources necessary

to make informed academic and career choices. Students can stay in the QUEST Program for a maximum of three academic semesters. At any time during the three semesters, providing they meet the requirements for their chosen major, students can declare a major in an academic college.

The program provides academic advising that serves the various needs of students choosing a major and refers them to other campus events, services, and resources such as Career Events, tutoring, career development, and others as necessary. While in the QUEST program, students work to fulfill general education requirements. Employers are looking for college-educated employees with transferable job skills. QUEST helps students gain these skills, which include critical thinking, decision-making, and adapting to change.

### Exploratory Studies

Students that do not meet the admission requirements for the college of their choice are placed into the Department of Exploratory Studies.

Students may take advantage of advisors who will guide them through the process as they prepare to enter their chosen program or college. Advisors are dedicated to helping students make the right choice in scheduling classes and to making referrals if additional academic support is needed. After a student's first semester within Exploratory Studies, they will be re-evaluated to determine if they meet the requirements to officially declare a major in the college of their choice. While in Exploratory Studies, new students will participate in the Exploratory Scholars Learning Community. Students will be part of a meta-major cohort and will take UC 1000, a one (1) credit FYE orientation course and UC 1120, a two (2) credit Career and Self-evaluation course. Students will also work to fulfill additional general education requirements.

## Department of Military Sciences

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The Military Science and Leadership curriculum will provide students (cadets) with basic military skills and the fundamentals of leadership, as well as starting the groundwork toward becoming an Army leader. At the conclusion of the Military Science and Leadership program, you will be prepared to commission as an Army Officer with the knowledge, skills, abilities, and behaviors to plan, resource, and assess training at the small unit level. You will also learn about Army programs that support counseling subordinates and evaluating performance, values and ethics, career planning, and legal responsibilities. You will be familiar with how to plan, prepare, execute, and continuously assess missions and the conduct of training at the company or battalion level.

Any enrolled college student can participate in the first two years of Army ROTC leadership courses without committing to join the Army. This is a unique opportunity to learn valuable skills and explore the program before deciding if this is a career path for you.

The Department of Military Science and Leadership is home to the UToledo Senior Army Reserve Officer Training Corps (ROTC) Rocket Battalion. In January of 1947, Dr. Phillip Nash, President of the University, made a formal application to the War Department for an Infantry ROTC unit which led to the ROTC program's establishment on May 28, 1947.

Over 2,000 lieutenants have been commissioned through the program since 1947.

### Minor in Military Science and Leadership Program

Cadets who complete 18 credit hours of core military science and leadership requirements may apply for the minor.

#### COURSE REQUIREMENTS FOR A MILITARY SCIENCE AND LEADERSHIP MINOR

Advanced Camp: During the summer after the junior year, cadets attend Advanced Camp where they focus on advanced military tactics and gain experience in team organization, planning, and decision making.

Code	Title	Hours
MSL 3010	Training Management and the Warfighting Functions	3
MSL 3020	Applied Leadership in Small Unit OPS	3
MSL 3850	Leaders Development And Assessment Course	3
MSL 4010	The Army Officer	3
MSL 4020	Company Grade Leadership	3
MSL 4800	United States Military History (* or approved military history course from list below)	3

Additional Military History courses that meet Cadet Command requirements are:

HIST 2250	World War I
HIST 2260	World War II On Film
HIST 3420	American Military History
HIST 3430	
HIST 4220	The American Revolution
HIST 4250	Civil War And Reconstruction
MSL 4990	Independent Study in US Military History
HIST 5220	
HIST 5250	

**Total Hours 18**

<sup>1</sup> Leadership Lab. All Cadets participate in weekly Leadership Lab as part of their 3 credit hour class. Leadership Lab provides the opportunity for "hands-on" training and skill development. All leadership labs are led by upper-class Cadets as part of their leadership development experience. Leadership labs are usually held on Thursday between 3:30 p.m. and 5:30 p.m.



**MSL 1010 Introduction to the Army**

[1 credit hour]

Introduces students to issues and competencies that are central to a commissioned officer's responsibilities. Establishes a framework for understanding leadership, officership, Army values, physical fitness and time management. Leadership Lab required.

**Term Offered:** Fall**MSL 1020 Foundations of Leadership**

[1 credit hour]

Builds upon the basic leadership fundamentals introduced in MSL 1010 and includes lessons in goal setting, problem solving, critical thinking, values clarification, leadership and followership, and introduces techniques for improving listening and speaking skills. Leadership Lab required.

**Prerequisites:** MSL 1010 with a minimum grade of D-**Term Offered:** Spring**MSL 1030 Introduction To Physical Fitness**

[1 credit hour]

Students participate in the U.S. Army's physical fitness program three days each week. The sessions include running, strength exercises, agility exercises and organized sports.

**Term Offered:** Spring, Fall**MSL 1040 Physical Fitness**

[1 credit hour]

Students participate in the U.S. Army's physical fitness program three days each week. The sessions build upon the fitness level previously achieved.

**Term Offered:** Spring**MSL 2010 Leadership and Ethics**

[2 credit hours]

Identifies successful leadership characteristics through observation of others and self, using experiential learning exercises designed to teach students how to communicate, how to build teams and how to plan and organize effectively. Leadership Lab required.

**Term Offered:** Summer, Fall**MSL 2020 Army Doctrine and Decision Making**

[2 credit hours]

Students examine how to build successful teams, including methods for influencing action and achieving goals, effective communication techniques, values and ethics, problem solving and physical fitness. Leadership Lab required.

**Term Offered:** Spring, Summer**MSL 2030 Physical Training I**

[1 credit hour]

Students participate in physical training three times each week. Students learn how to conduct and lead a military physical training session.

**Term Offered:** Fall**MSL 2040 Physical Training II**

[1 credit hour]

Students participate in physical training three times each week. The sessions build upon the training level previously achieved.

**Term Offered:** Spring**MSL 2200 Leader's Training Course**

[3 credit hours]

This training is a six week course in leadership management and interpersonal skills taught at Ft. Knox, Kentucky. The training compresses the Military Science 1000 and 2000-level courses. Camp graduates are eligible to enter the Army ROTC Advanced course.

**Term Offered:** Spring, Fall**MSL 2990 Independent Study In Military Science**

[1-3 credit hours]

Students will study an appropriate subject mutually agreed upon between the student and instructor.

**Term Offered:** Spring, Fall**MSL 3010 Training Management and the Warfighting Functions**

[3 credit hours]

Students assess leadership abilities, plan and conduct individual and small unit training, and apply basic tactical principles and reasoning skills. Leadership Lab required

**Term Offered:** Fall**MSL 3020 Applied Leadership in Small Unit OPS**

[3 credit hours]

Examines the role that communications, values and ethics play in effective leadership. Topics include ethical decision making, consideration of others and Army Leadership Doctrine. Leadership Lab required.

**Term Offered:** Spring**MSL 3030 Physical Fitness Planning I**

[1 credit hour]

Students design and implement weekly physical training sessions. In addition, they learn how to supervise a group training session.

**Term Offered:** Fall**MSL 3040 Physical Fitness Planning II**

[1 credit hour]

Students design and implement weekly physical training sessions. The sessions build upon the skill level previously achieved.

**Term Offered:** Spring**MSL 3600 Airborne Operations**

[1 credit hour]

Three weeks of intensive field training conducted at Ft. Benning, Georgia. Combines the study of military airborne operations, strenuous physical conditioning, military parachute techniques and culminates with five parachute jumps from military aircraft.

**Term Offered:** Spring, Fall**MSL 3700 Cadet Troop Leadership Training (ctlt)**

[2 credit hours]

Three weeks of practical experience serving as a platoon leader with U.S. Army soldiers. This training puts the student in leadership situations and allows them to practice and hone their leadership skills in a real world environment.

**Term Offered:** Spring, Summer, Fall

**MSL 3800 Air Assault Operations**

[1 credit hour]

Two weeks of intensive field training conducted at an Army installation. Combines the study of Military Heliborne Operations, strenuous physical conditioning and advanced rappelling. Culminates with 4 rappels from a military helicopter.

**Term Offered:** Spring, Fall**MSL 3850 Leaders Development And Assessment Course**

[3 credit hours]

This is an intense five-week course conducted between the junior and senior year. This concentrated practical training provides an opportunity to evaluate the student's application of academic knowledge over a myriad of leadership situations and tasks.

**Term Offered:** Spring, Summer, Fall**MSL 4010 The Army Officer**

[3 credit hours]

Develops student proficiency in planning and executing complex operations, functioning as a member of a staff and mentoring subordinates. Students explore the Army's training management system, methods of effective staff collaboration and developmental counseling techniques.

**Prerequisites:** MSL 3010 with a minimum grade of D- and MSL 3020 with a minimum grade of D-

**Term Offered:** Summer, Fall**MSL 4020 Company Grade Leadership**

[3 credit hours]

Course includes a case study analysis of military law and practical exercises on establishing an ethical command climate. Students complete a semester-long Senior Leadership Project that requires them to plan, organize, analyze and demonstrate their leadership skills.

**Prerequisites:** MSL 3010 with a minimum grade of D- and MSL 3020 with a minimum grade of D-

**Term Offered:** Spring, Summer**MSL 4030 Advanced Pt Planning I**

[1 credit hour]

Students design and implement a physical training program for the entire semester. They supervise and critique implementation of the MS 3030 students' weekly training plans.

**Term Offered:** Fall**MSL 4040 Advanced Pt Planning II**

[1 credit hour]

Students design and implement a physical training program for the entire semester. The sessions build upon the skill level previously achieved.

**Term Offered:** Spring**MSL 4800 United States Military History**

[3 credit hours]

An in-depth study of the battle and its place in American history, examining combat leadership and the decision making process at both the operational and tactical level.

**Term Offered:** Spring, Fall**MSL 4990 Independent Study in US Military History**

[1-3 credit hours]

Students will study an appropriate subject mutually agreed upon between the student and instructor.

**Term Offered:** Spring, Summer, Fall

## College Credit Plus

The University of Toledo's College Credit Plus program gives college-bound high school students the opportunity to earn college credit and high school credit simultaneously. This gives students the advantage of starting the transition to college early, while reducing the cost and length of time to receive a degree. High school students can take part in the college experience, interacting with full-time college students and university faculty, while experiencing the rigor of college-level courses.

## Benefits of UToledo's College Credit Plus Program

- There is no cost to the student or families for course and instructional materials
- All courses are taken with UToledo undergraduate students
- All College Credit Plus students are considered UToledo students and have access to many benefits and student support services, with the exception of financial aid
- Credits earned can transfer toward a bachelor's degree. UToledo Core/General Education offers courses across six disciplines comprising the Ohio Transfer OT36 (<https://transfercredit.ohio.gov/students/types-of-student/college/ot36/Ohio-Transfer-36-Student/>) and guarantees the transfer of UToledo Core/General Education courses designated as Ohio Transfer 36 (OT36) to Ohio public universities and two-year colleges
- Courses can integrate virtual labs, simulation center visits and other special resources only UToledo can offer
- All students have access to their instructor via email, telephone, and in-person during posted scheduled office hours

## Getting Started in College Credit Plus

Students who are interested in participating in the College Credit Plus program should consult with their high school guidance counselor to determine which courses are still needed for graduation; this will help students and their Success Coach when it comes time to create their college schedule. Next, they will complete The University of Toledo College Credit Plus application form (<https://www.utoledo.edu/admission/college-credit-plus/>). The application, transcript, and test score(s) (if applicable) will be reviewed and, if everything is satisfactory, students will be admitted and receive a letter of admission that includes their Rocket number and how to set up their student account and UT Rockets email.

## College Credit Plus Student Responsibilities

- Attend all classes
- Complete all required coursework
- Meet regularly with high school counselor and UT Success Coach to stay on track for graduation and remain successful in all courses
- Purchase parking permit if applicable

- Pass all classes with a D- or better
- Students who receive a failing grade in a class can be billed for the published cost of that class by their high school district (if a public school student) or the State of Ohio (if a non-public school student)
- Students in the College Credit Plus program are governed by the same undergraduate academic policies (<http://www.utoledo.edu/policies/academic/undergraduate/>) as UT students in University College (<http://www.utoledo.edu/uc/>)



# INSTITUTE OF AMERICAN CONSTITUTIONAL THOUGHT AND LEADERSHIP

The undergraduate certificate in civic thought and leadership forms students to pursue excellence as engaged citizens. This interdisciplinary program of studies integrates courses that will provide students with the intellectual formation and practical skills that will enable them to navigate the challenges of American civic life and leadership in business, academia, and the public square.

Each course in the certificate program invites students to engage new material while recalling or revisiting material covered in one of the other courses. In this way, the certificate forms students to consider diverse perspectives and enter hard conversations with sober reason and sympathetic judgment. The goal is for students to practice the arts of citizenship necessary for understanding their country and each other.

The two required core courses build on each other. The Art of Statesmanship course introduces students to classical and modern claims about the qualities necessary for leadership. In The Art of Rhetoric course, students learn to cross examine famous classical and American speeches. These courses take an integrative approach to understanding the roles of leadership and public speech within the framework of American constitutional government.

An integral component of each course is the practicum. Students in The Art of Statesmanship participate in a writing practicum that serves as a workshop in written argument. The Art of Rhetoric involves an oratory practicum, in which students will receive guidance in crafting and presenting a speech. The instructor will offer additional support and mentorship outside the classroom. And professional speechwriters may participate in the oratory practicum to offer students feedback.

In addition to these core requirements, students must select two additional courses listed within the plan of study. Subjects of study for these courses include civic discourse, competing theories of justice, and the history of America's economic order. Each of these courses may involve practical as well as theoretical elements, enabling students to learn concrete skills while receiving formation of the mind. Students may also have the option to select from focused studies in the Special Topics seminars offered by the Institute's faculty.

This interdisciplinary program teaches students to read difficult texts with greater care, to compose written and oral arguments in a more disciplined way, to discuss controversial topics with civility, and to think through difficult questions.

Our curriculum aims to build community, and students will benefit from mentoring relationships with faculty and from participating together in extra-curricular activities sponsored by the Institute of American Constitutional Thought & Leadership. Such activities may include lunch seminars and public lectures.

Students in the certificate program will also receive invitations to unique opportunities, including evening colloquia and seminars with guest speakers. Students who complete the certificate will receive special

consideration for the Institute's fellowship opportunities, including the Institute's summer study abroad program in Oxford.

## Civic Thought and Leadership, Certificate

### Requirements

Code	Title	Hours
CLT 3000	The Art of Statesmanship and the Civic Life	3
CLT 3010	The Art of Rhetoric and the Civic Life	3
Select two of the following		6
CLT 3500	Civic Discourse	
CLT 3510	Competing Theories of Justice	
ECON 4410		
CLT 3990	Special Topics in Civic Thought	
<b>Total Hours</b>		<b>12</b>

### Plan of Study

First Term	Hours
CLT 3000 The Art of Statesmanship and the Civic Life	3
Select from electives	3
CLT 3500 Civic Discourse	
CLT 3990 Special Topics in Civic Thought	
<b>Hours</b>	<b>6</b>
Second Term	Hours
CLT 3010 The Art of Rhetoric and the Civic Life	3
Select from electives	3
CLT 3510 Competing Theories of Justice	
ECON 4410	
CLT 3990 Special Topics in Civic Thought	
<b>Hours</b>	<b>6</b>
<b>Total Hours</b>	<b>12</b>

### Learning Outcomes

- Become conversant with some of the key principles and figures of American civic life.
- Study the principles of engaged citizenship through the lives and speeches of public figures.
- Assess the motivations and ideals of great leaders.
- Understand the role that leadership plays in a modern democratic society.
- Identify the rationales for open civic discourse.
- Investigate how different claims about justice influence economic and legal arrangements.
- Examine alternative claims about what is required for leadership in a constitutional republic.
- Examine how certain laws and economic practices have influenced American society.
- Practice discussing controversial issues with clarity and civility.
- Practice the art of public speaking.
- Practice clear and compelling writing.



- Practice a disciplined approach to thinking through difficult questions and issues for oneself.

**CLT 3000 The Art of Statesmanship and the Civic Life**

[3 credit hours]

This course examines the art of statesmanship, the meaning of political greatness and the means of educating aspiring young statesmen and stateswomen. The ambition, moral character, cunning, prudence, and grit required for effective statesmanship are analyzed using books written by past statesmen for future statesmen. The course also explores whether the life of leadership is a desirable way of life. Differences between classical and modern statesmanship are considered, in addition to the unique demands that different regimes and natural circumstances place on founders and leaders.

**Term Offered:** Fall**CLT 3010 The Art of Rhetoric and the Civic Life**

[3 credit hours]

This course examines the art of rhetoric and the role that rhetoric plays in different political societies. The purposes and limitations of rhetoric and public deliberation in modern democracies will be analyzed through close readings of great speeches from classical to modern times. The tradition of great speeches by American men and women is a special focus of this course. Other forms of writing, including philosophical texts, dialogues, essays, and literary works will be considered. Students will also write and present their own oration and may receive feedback from professional speechwriters.

**Term Offered:** Spring**CLT 3500 Civic Discourse**

[3 credit hours]

This course explores the value of civic discourse to an open, free, and tolerant society and provides students with an opportunity to learn and practice the core skills necessary to civic discourse. Students will study the underlying philosophic justifications for maintaining an open society and the connection between civic discourse and an open society. Students will also study how to productively discuss difficult or sensitive subjects with others who hold different or contrary views, and the value of doing so. The class will confront a series of contemporary “hot-button” issues (i.e. gun control, immigration, abortion, policing) to allow students the opportunity to engage in civic discourse.

**Term Offered:** Fall**CLT 3510 Competing Theories of Justice**

[3 credit hours]

This course explores competing theories of justice as models we can use to explore and think more carefully about contemporary controversies in public, political, and social spheres. Students will assess the practical applications of those theories in different situations. Students will also research and prepare an executive summary on different actions, laws or public policies. They will present these summaries in a mini-conference that will take place as part of the course.

**Term Offered:** Spring**CLT 3990 Special Topics in Civic Thought**

[3 credit hours]

This course examines special topics in civic thought and leadership. Topics will be determined by the instructor and may be interdisciplinary. Among other possible topics, this course may focus on a careful reading of a single text, a comprehensive study of a single author’s thought, or more broad investigations of ideas, history, and texts across multiple authors. May be repeated for a total of 6 credit hours under different topics.

**Term Offered:** Spring, Summer, Fall

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## Accounting (ACCT) (ACCT)

### ACCT 3100 Data Analytics in Accounting

[3 credit hours]

This class focuses on the skills necessary to analyze, visualize, and effectively communicate information captured by accounting data in written and visual form.

**Prerequisites:** (BUAD 2040 with a minimum grade of C and BUAD 2050 with a minimum grade of C)

**Term Offered:** Spring, Summer, Fall

### ACCT 3110 Intermediate Financial 1

[3 credit hours]

This course covers accounting topics applicable to asset valuation, income measurement and financial statement disclosure. It concentrates on accounting for corporations and emphasizes the accounting cycle and the asset side of the balance sheet.

**Prerequisites:** BUAD 2040 with a minimum grade of C and BUAD 2050 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

### ACCT 3120 Intermediate Financial 2

[3 credit hours]

This course concentrates on financial accounting for corporations and emphasizes the liability and stockholders' equity sections of the balance sheet, and related income statement issues.

**Prerequisites:** ACCT 3110 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**ACCT 3210 Individual Taxation**

[3 credit hours]

This class focuses on the concepts and principles applicable to the taxation of individuals.

**Prerequisites:** ACCT 3110 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**ACCT 3310 Accounting Information Systems And Controls**

[3 credit hours]

This course provides an introduction to processing and reporting of accounting information. Major emphasis is placed on basic accounting information processing including accounting applications in an advanced information technology environment.

**Prerequisites:** ACCT 3100 with a minimum grade of C and ACCT 3110 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**ACCT 3320 Cost Accounting**

[3 credit hours]

Internal Reporting focuses on budgeting, product and service costing and the ability to recognize and provide management with relevant information for strategic cost management and performance evaluation.

**Prerequisites:** ACCT 3110 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**ACCT 4130 Advanced Financial Accounting**

[3 credit hours]

This is the third course in the external financial reporting sequence. This course covers topics such as foreign exchange, partnerships, business consolidations and mergers.

**Prerequisites:** ACCT 3120 with a minimum grade of C or ACCT 5120 with a minimum grade of C

**Term Offered:** Spring, Fall

**ACCT 4250 Taxation of Business Entities**

[3 credit hours]

This course covers the taxation of corporations, their shareholders, and other business entities. Topics include formation of business entities, taxation of income, and tax treatment of distributions.

**Prerequisites:** ACCT 3120 with a minimum grade of C and ACCT 3210 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**ACCT 4410 Governmental And Not-For-profit Accounting**

[3 credit hours]

Principles, procedures and ethics of financial reporting for not-for-profit organizations, including state and local government. Includes the use of funds, budgets, appropriations and encumbrances as means of control.

**Prerequisites:** ACCT 3120 with a minimum grade of C

**Term Offered:** Spring, Fall

**ACCT 4420 Auditing**

[3 credit hours]

Auditing integrates financial and cost accounting, ethics, accounting theory, information systems and control structure concepts into a systematic process of obtaining, evaluating and reporting on economic events and activities.

**Prerequisites:** (ACCT 3110 with a minimum grade of C and ACCT 3310 with a minimum grade of C)

**Term Offered:** Spring, Summer, Fall

**ACCT 4940 Accounting Internship**

[1-3 credit hours]

The accounting internship allows superior accounting students to obtain practical training through a rigorous learning experience. This program enables students to secure a broad exposure to business operations and problems.

**Prerequisites:** ACCT 3110 with a minimum grade of B

**Term Offered:** Spring, Summer, Fall

**ACCT 4990 Independent Study: Readings And Research**

[1-3 credit hours]

The student will write a research report on an accounting topic of interest to both student and faculty adviser. The topic must not be covered in another undergraduate accounting course.

**Prerequisites:** ACCT 3120 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

## Accounting Technology (ACGT)

**ACTG 1040 Principles Of Financial Accounting**

[3 credit hours]

Basic financial accounting principles for a business enterprise. Topics include transaction analysis, preparation, interpretation and use of financial reports such as an income statement and balance sheet. Students will calculate and interpret a variety of financial ratios. Familiarity with business terms and concepts will be emphasized.

**Term Offered:** Spring, Summer, Fall

**ACTG 1050 Principles Of Management Accounting**

[3 credit hours]

Management uses of accounting data for analysis, decision making, financial planning and control. Topics include understanding cost behavior, job order and activity-based costing, cost-volume profit analysis and budgeting. Emphasis on development of critical thinking skills.

**Prerequisites:** ACTG 1040 with a minimum grade of D- or BUAD 2040 with a minimum grade of D-

**ACTG 1200 QuickBooks**

[3 credit hours]

This course will introduce students to QuickBooks software. Students will record financial transactions for fictional companies. Topics include creating a chart of accounts, recording customer and vendor transactions, processing payroll, and printing receipts.

**Term Offered:** Fall

**ACTG 2100 Intermediate Accounting I**

[3 credit hours]

In-depth expansion of financial accounting principles and financial statement presentation. Emphasis on balance sheet accounts with particular attention applied to working capital (cash, receivables, inventory, and current liabilities) and long-term assets. Discussion of revenue recognition and internal control.

**Prerequisites:** ACTG 1040 with a minimum grade of D- or BUAD 2040 with a minimum grade of D-

**Term Offered:** Spring

**ACTG 2300 Cost Accounting**

[3 credit hours]

Practice of cost accounting especially applied to manufacturing business. Includes accounting for materials, labor and overhead under job order and process cost systems, standard costing, use of the Balanced Scorecard, and quantitative tools useful in decision making.

**Prerequisites:** ACTG 1050 with a minimum grade of D- or BUAD 2050 with a minimum grade of D-

**Term Offered:** Fall

**ACTG 2310 Financial Management for Health Care**

[3 credit hours]

Provides a basic foundation in both financial and management accounting and corporate finance aimed at entry level managers working in a healthcare setting. Explains the basic forms of business financing, capital decision processes, capital investment analysis, and financial statements. Introduces business terminology and explains financial issues relevant to health care providers.

**Term Offered:** Spring

**ACTG 2400 Fundamentals Of Taxation**

[3 credit hours]

Consideration of the basic features of the federal income tax system. Emphasis is placed on the determination of taxable income of individuals and corporations. Also covered will be the preparation of the form 1040.

**Term Offered:** Spring

**ACTG 2630 Payroll Accounting**

[1 credit hour]

This course will teach students the development and maintenance of appropriate reports, retention periods and tax filings.

**Term Offered:** Spring

## Adult and Lifelong Learning (AL)

**AL 3500 Fundamentals of Interdisciplinary Research**

[3 credit hours]

This course is designed as a foundational course for University College for all University Studies (UNVI) and Liberal Studies degree program students. It is the required prerequisite course for students needing to take the Senior Capstone (AL 4950 or AL 4940) courses. It is a review of the research process course designed for undergraduate students majoring in all disciplines. It emphasizes the fundamentals of conducting college-level research and the practice of writing about and properly citing that process.

**AL 4940 Field Experiences and Internship**

[4 credit hours]

The purpose of this class is to provide a culminating experience of self-reflection, academic research, and critical thinking as an experiential-learning capstone to your multi-disciplinary University College undergraduate degree program. The overall objective is that you design a professional portfolio that reflects this learning experience. AL 4940 is completed under the guidance of the instructor of record and it must be completed prior to graduation. Permit required.

**Term Offered:** Spring, Summer, Fall

**AL 4950 Senior Capstone**

[4 credit hours]

The purpose of this class is to provide a culminating integrative experience of self-reflection, academic research, and critical thinking as a capstone to your multi-disciplinary University College undergraduate degree program. This course will result in a Senior Final Project – an Annotated Bibliography and a Multimedia Presentation of your research - in which you will learn, practice and demonstrate skills that will prove your proficiency and facility with the research process. Students will design a Capstone Project based upon research related to an area of concentration.

**Term Offered:** Spring, Summer, Fall

## Adult Liberal Studies (ALS)

**ALS 3040 Topical Seminar: Social Sciences**

[4 credit hours]

Focus on topics of general interest to liberal arts students with particular reference to tools, concepts and analytical methods of social scientists. Jr. Standing required and completion of Comp. II, or permission of instructor.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 1160 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ALS 3050 Topical Seminar: Humanities**

[4 credit hours]

Focus of general interest in humanities; writing and communication; religious, philosophical and ideological traditions; traditional and performing arts. Jr. Standing required and completion of Comp. II, or permission of instructor.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 1160 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ALS 3060 Topical Seminar: Natural Sciences**

[4 credit hours]

Topics of general interest that consider scientific problem solving in such areas as biology, chemistry, geology, astronomy, physics, mathematics and statistics. Jr. Standing required and completion of Comp. II, or permission of instructor.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 1160 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

## Africana Studies (AFST)

### AFST 1100 Introduction To Africana Studies

[3 credit hours]

Introductory survey of basic theoretical concepts to analyze the Black experience, with special focus on the general historical process common to the African Diaspora (Africa, Caribbean and the Americas - South, Central and North, especially the USA.)

**Term Offered:** Spring, Summer, Fall  
Multicultural US Diversity

### AFST 1200 Introduction To The African Experience

[3 credit hours]

Introduction to the African experience through case studies of critical historical experiences: origin of humanity, origin of civilization, empire and traditional society.

**Term Offered:** Spring, Summer, Fall  
Multicultural Non-US Diversity

### AFST 2100 Foundations Of Black Intellectual History

[3 credit hours]

An examination of slavery and colonialism in the intellectual history of the African Diaspora, especially in the work of W.E.B. Dubois, C.L.R. James and Kwame Nkrumah.

**Prerequisites:** AFST 1100 with a minimum grade of D- or AFST 1200 with a minimum grade of D-

**Term Offered:** Spring  
Multicultural US Diversity

### AFST 2220 History Of Jazz

[3 credit hours]

A study of the development of jazz styles including listening skills and historical perspectives. Because the major innovations and stylistic interpretations of jazz are a result of African Americans, the course includes a study of how their culture influenced the development of jazz. Students may take P/NC.

**Term Offered:** Spring, Summer, Fall  
Core Arts & Humanities, Multicultural US Diversity, OT36 Arts and Humanities

### AFST 2660 African Politics

[3 credit hours]

The character and development of African political institutions and processes with a special emphasis on patterns in the post-independence period and prospects for the future.

**Term Offered:** Spring, Summer, Fall  
Multicultural Non-US Diversity

### AFST 3600 Entrepreneurship and the Black Community

[3 credit hours]

Explores the gap between entrepreneurial aspirations and the actual entrepreneurial enterprises in the black community. Examines the subject in a socio-historical context. Diverse sociological perspectives, methodologies and analyses are employed. Student would need 3 hours of Soci-Science or 3 hours of AFST.

**Term Offered:** Spring, Fall  
Multicultural US Diversity

### AFST 3700 African Women & the Environment

[3 credit hours]

Overview of empirical evidence and interpretive models of African women with reference to environment. Specific topics: African women managing natural resources; implications of climate change in Africa; ecology and feminism. Student will need 3 hours of Soci-Science or 3 hours of AFST.

**Term Offered:** Spring, Fall

### AFST 3800 Ecotourism: Studies of the Africana World

[3 credit hours]

Introduce students to the field of ecotourism studies and specific challenges of community development and sustainability. The course covers ecotourism in the Africana world of Africa, the Caribbean, and Latin America.

**Term Offered:** Spring, Fall

### AFST 3900 Perspectives on African American Education

[3 credit hours]

Covers the history and cultural heritage of African Americans and an in-depth knowledge of experiences of African American student populations in preparation for a variety of career fields, including education, social work, criminal justice, business, nursing, and other professions. Examines key debates and policy proposals to better understand current issues impacting African American student populations. U.S. Diversity

**Term Offered:** Spring, Fall  
Multicultural US Diversity

### AFST 4660 African American Literature In The 20th and 21st Century

[3 credit hours]

A course focused on 20th and 21st century African American poetry, fiction, nonfiction, and drama.

**Term Offered:** Spring, Summer, Fall  
Multicultural US Diversity

### AFST 4900 Senior Seminar

[3 credit hours]

General theoretical synthesis of the field focusing on a close reading of a recent biographical work of intellectual history, a recent work of cultural criticism and a recent work of social analysis.

**Term Offered:** Spring, Summer, Fall

### AFST 4910 Directed Research

[1-6 credit hours]

Student selected research topic under the supervision of faculty member and the Director of Africana Studies. Permission to enroll is contingent on a written proposal by the student being accepted by the two sponsoring faculty.

**Term Offered:** Spring, Summer

### AFST 4920 Directed Readings

[1-6 credit hours]

For advanced students wishing to read a specialized literature in the field. Requires a written proposal approved by faculty and Director of the Program.

**Prerequisites:** AFST 1100 with a minimum grade of D- or AFST 1200 with a minimum grade of D-

**AFST 4980 Special Topics In Africana Studies**

[3 credit hours]

Discussion of a substantial issue in scholarly research or public discourse relative to the African Diaspora. May be repeated for different issues. Maximum number of hours for AFST 4980 should not exceed 9 semester hours.

**Term Offered:** Spring, Summer, Fall

## American Studies (AMST)

**AMST 2700 Introduction To American Studies**

[3 credit hours]

An introduction to the interdisciplinary field of American Studies and U.S. cultural identity through cultural expression and theoretical examination.

**Term Offered:** Spring, Fall

## Anthropology (ANTH)

**ANTH 1020 Introduction To Anthropology**

[3 credit hours]

A survey of the varied aspects of anthropology, including cultural anthropology, prehistory, physical anthropology and linguistics. (not for major credit)

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

**ANTH 2000 Proseminar In Anthropology I**

[1 credit hour]

Students are introduced to the academic and professional nature of Anthropology. Topics covered include professional socialization, honor theses, portfolio construction, preparation for graduate studies, and career development.

**Term Offered:** Spring, Fall**ANTH 2020 Introduction To Archaeology**

[3 credit hours]

An introduction to the history, methods and techniques of archaeology and how the discipline of archaeology is related to anthropology, ethnohistory, history and geology.

**Term Offered:** Spring, Fall

Core Social Sciences, OT36 Social Science

**ANTH 2100 Human Society Through Film**

[3 credit hours]

An introduction through the use of ethnographic film to various aspects of non-western culture and the development of the use of film in anthropology.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural Non-US Diversity

**ANTH 2700 Human Evolution**

[3 credit hours]

A survey of the human species in time, place and culture and the investigation of the factors underlying human biological variation.

**Term Offered:** Summer, Fall

Core Social Sciences

**ANTH 2750 World Archaeology**

[3 credit hours]

A survey of the processes of cultural development from the lower Pleistocene to development of writing.

**Term Offered:** Spring, Summer

Core Social Sciences, OT36 Social Science

**ANTH 2800 Cultural Anthropology**

[3 credit hours]

Introduction to culture patterns and processes and their relationship to human society and language.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural Non-US Diversity, OT36 Social Science

**ANTH 2900 African American Culture**

[3 credit hours]

A survey of the socio-historical and cultural factors of African Americans in the U.S.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity, OT36 Social Science

**ANTH 2980 Topics in Anthropology**

[3 credit hours]

Examination of Special Topics in Anthropology. May be repeated on different topics.

**Term Offered:** Spring, Summer, Fall**ANTH 3000 Environmental Anthropology**

[3 credit hours]

A study of the functional interrelationships of humans and their biophysical environment in cross cultural perspective, with special emphasis on non-western cultures.

**Term Offered:** Spring, Fall**ANTH 3020 Ohio Prehistory**

[3 credit hours]

A study of the prehistoric peoples in Ohio from the end of the Ice Age to the arrival of the Europeans.

**ANTH 3330 Food, Health, Society**

[3 credit hours]

This course deals with multi-cultural dietary patterns through time and space, as well as cross-cultural influences on health and disease.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**ANTH 3800 Ecotourism: Studies of the Africana World**

[3 credit hours]

Introduce students to the field of ecotourism studies and specific challenges of community development and sustainability. The course covers ecotourism in the Africana world of Africa, the Caribbean, and Latin America.

**Term Offered:** Spring, Fall**ANTH 3850 Peoples Of World: An Evolutionary Approach**

[3 credit hours]

An introduction to the socioeconomic activities in societies of varying sociocultural complexity.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity



**ANTH 3900 North American Archaeology**

[3 credit hours]

This course focuses on the history of North America as known from the archaeological record; from the peopling of North America through early historical contexts.

**Term Offered:** Spring, Fall  
Multicultural US Diversity

**ANTH 3920 Indians Of North America**

[3 credit hours]

A survey of North America Indians from prehistoric times to the present.

**Term Offered:** Spring, Fall  
Multicultural US Diversity

**ANTH 3940 Peoples Of Sub-Saharan Africa**

[3 credit hours]

The cultures and societies of the Sub-Saharan peoples of Africa.

**Prerequisites:** ANTH 2800 with a minimum grade of D-

**Term Offered:** Spring  
Multicultural Non-US Diversity

**ANTH 4000 Proseminar In Anthropology II**

[2 credit hours]

Discussion among faculty and students devoted to the study of Anthropology with a special focus on the development of a professional portfolio for graduate work or career.

**Prerequisites:** ANTH 2000 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ANTH 4200 History and Theory in Anthropology-WAC**

[3 credit hours]

This course acquaints students with various schools of anthropological theory, stressing the influence of traditional approaches on contemporary thought and the impact of historical context on the development of theory.

**Prerequisites:** ANTH 2800 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ANTH 4300 Cultural Resource Management - WAC**

[3 credit hours]

Course explores the history, theory, and contemporary issues behind the historic preservation movement and emergence of Cultural Resource Management in the United States; topics engaged include legislation, federal and state programs, the national register, regional planning, and research orientations.

**Term Offered:** Spring, Summer, Fall

**ANTH 4440 People, Population, and Society: Demographic Analysis**

[3 credit hours]

Methods of population analysis, including examination and evaluation of data sources.

**Term Offered:** Spring, Summer

**ANTH 4450 Exploring the City**

[3 credit hours]

This course takes an interdisciplinary approach to life in cities around the world, with emphasis on the ethnographic exploration of how power, cultural difference, and social inequality in cities are produced and experienced.

**Term Offered:** Spring, Fall

**ANTH 4510 Field Methods in Archaeology**

[6 credit hours]

Methods of excavation and recovery of archaeological data. Field school conducted during excavation of a prehistoric site in the Toledo area.

**ANTH 4520 Laboratory Methods In Archaeology**

[3 credit hours]

Instruction in the methods and techniques employed by the archaeologist to analyze cultural material recovered in the field.

**Term Offered:** Fall

**ANTH 4530 Qualitative Approaches in Social Science Research**

[3 credit hours]

This course examines qualitative methods used in social science research. Focusing on ethnographic and qualitative methods, the course provides students the skills necessary to design and conduct qualitative research studies.

**ANTH 4760 Medical Anthropology**

[3 credit hours]

An examination of the biocultural nature of health and illness, with special emphasis on changing patterns of disease in non-western societies.

**Term Offered:** Spring, Fall  
Multicultural Non-US Diversity

**ANTH 4790 Human Osteology**

[3 credit hours]

This course focuses on human skeletal anatomy and bone morphology using an evolutionary and biocultural perspective. Students are introduced to skeletal elements, their major landmarks, and methods for analyzing materials and assessing variation.

**Prerequisites:** ANTH 2700 with a minimum grade of D-

**Term Offered:** Spring

**ANTH 4820 Anthropology Of Religion**

[3 credit hours]

A cross-cultural approach to the description and analyses of magical and religious beliefs and practices in Asia, Africa, Latin America and Indigenous North America.

**Prerequisites:** ANTH 2800 with a minimum grade of D-

**Term Offered:** Spring, Fall  
Multicultural Non-US Diversity

**ANTH 4860 The Irish-American Experience**

[3 credit hours]

A survey of the sociohistorical and cultural factors related to the immigration and adaptation of the Irish in America.

**Term Offered:** Spring  
Multicultural US Diversity

**ANTH 4910 Independent Research In Anthropology**

[1-3 credit hours]

Supervised independent research in anthropology.

**Term Offered:** Spring, Summer, Fall

**ANTH 4920 Directed Readings In Anthropology**

[1-3 credit hours]

Designed for those wishing to continue course work in greater depth or seeking contact with unlisted subject areas. Written proposal and consent required.

**Term Offered:** Spring, Summer, Fall

**ANTH 4940 Internship in Anthropology**

[1-6 credit hours]

This course provides students supervised field placement related to the field of anthropology. Qualified students will work in approved organizations, such as museums, parks, research libraries, government agencies, community organizations, businesses, schools, etc.

**Term Offered:** Spring, Summer, Fall**ANTH 4960 Honors Thesis**

[3-6 credit hours]

The student completes a thesis under the direction and guidance of their faculty adviser.

**Term Offered:** Spring, Summer, Fall**ANTH 4980 Problems In Anthropology**

[3 credit hours]

Courses on varied anthropological specialties. May be repeated in different specialty areas such as religion, ethnohistory, ethnic conflict and area courses.

**Term Offered:** Spring, Summer, Fall

## Arabic Language (ARBC)

**ARBC 1080 Culture and Commerce in the Arabic-Speaking World**

[3 credit hours]

A study of the culture and society of the Arabic-speaking world with emphasis on business and economics. Taught in English.

**Term Offered:** Spring

Core Arts &amp; Humanities, Multicultural Non-US Diversity

**ARBC 1090 Culture of the Arabic-Speaking World**

[3 credit hours]

An introduction to principal social, artistic, and literary aspect of modern culture in the Arabic-speaking worlds. Taught in English.

**Term Offered:** Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity

**ARBC 1110 Elementary Arabic I**

[4 credit hours]

An introduction to Arabic Language and culture through listening, speaking, reading and writing. Laboratory practice required.

**Term Offered:** Fall**ARBC 1120 Elementary Arabic II**

[4 credit hours]

An introduction to Arabic language and culture through listening, speaking, reading and writing. Laboratory practice required.

**Prerequisites:** ARBC 1110 with a minimum grade of D-**Term Offered:** Spring

Core Arts &amp; Humanities

**ARBC 2140 Intermediate Arabic I**

[3 credit hours]

Further practice of the four language skills with grammar building and readings of a literary-cultural nature.

**Prerequisites:** ARBC 1120 with a minimum grade of D-**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**ARBC 2150 Intermediate Arabic II**

[3 credit hours]

Further practice of the four language skills with grammar building and readings of a literary-cultural nature.

**Prerequisites:** ARBC 2140 with a minimum grade of D-**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**ARBC 3010 Conversation and Composition I**

[3 credit hours]

Work on advanced listening, speaking, reading, and writing skills through intensive work with authentic texts that deal contemporary issues relating to the Arabic-speaking world.

**Prerequisites:** ARBC 2150 with a minimum grade of D-**Term Offered:** Fall**ARBC 3020 Conversation and Composition II**

[3 credit hours]

Work on advanced listening, speaking, reading, and writing skills through intensive work with authentic texts that deal contemporary issues relating to the Arabic-speaking world.

**Prerequisites:** ARBC 3010 with a minimum grade of D-**Term Offered:** Spring**ARBC 3410 Survey of Arabic Civilization I**

[3 credit hours]

The course examines the Arabic culture and civilization from Arabic authors' literature published in English as well as in Arabic and compares that to Western thought and expression.

**Prerequisites:** ARBC 3020 with a minimum grade of D-**Term Offered:** Fall**ARBC 3420 Survey of Arabic Civilization II**

[3 credit hours]

This course further the students' knowledge of the Arabic civilization through examining the ways of thinking and social contexts as expected in literary works and poetry from different eras.

**Prerequisites:** ARBC 3020 with a minimum grade of D-**Term Offered:** Spring**ARBC 3980 Special Topics in Arabic**

[1-3 credit hours]

Study of a selected topic in Arabic language, literature or culture. May be repeated when topic varies.

**Prerequisites:** ARBC 3010 with a minimum grade of D- and ARBC 3020 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**ARBC 4010 Arabic Syntax and Stylistics I**

[3 credit hours]

It provides thorough intensive work with authentic texts that allows further study of syntax, morphology and complex grammatical structure of Arabic and the relationship between aural/oral aspects of the language.

**Prerequisites:** ARBC 3020 with a minimum grade of D-**Term Offered:** Fall

**ARBC 4020 Arabic Syntax and Stylistics II**

[3 credit hours]

It provides thorough intensive work with authentic texts that allows further study of syntax, morphology and complex grammatical structure of Arabic and the relationship between aural/oral aspects of the language.

**Prerequisites:** ARBC 4010 with a minimum grade of D-**Term Offered:** Spring**ARBC 4980 Special Topics in Arabic**

[1-3 credit hours]

Study of a selected topic in Arabic language, literature or culture. May be repeated when topic varies.

**Prerequisites:** ARBC 3010 with a minimum grade of D- and ARBC 3020 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

## Art (ART)

**ART 1030 Multi-Cultural Art Appreciation A Lived Game of Contemporary Art**

[3 credit hours]

This course uses a narrative framework drawn from Alternate Reality Games (ARGs) so that it is not just a venue for being told about or discussing artworks, but for experiencing them. In the course, encounters with art in virtual and real spaces are reflected on through an online journal, image collections, the creation of visual artifacts, and individualized feedback on each student's own work from peers. Not for major credit in Art, Art History or Art Education.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**ART 1040 Foundations of Art Studio Technology**

[3 credit hours]

Historical and hands-on overview of human interaction with tools; from simple levers to 3D printers and CNC machines. Through studio projects, research, assigned readings and written analysis, students will integrate philosophical and practical concepts. Students will acquire skills and understanding of the tools, techniques and collaborative processes necessary to respond to a rapidly changing global economy and job market. Web-assisted course.

**Term Offered:** Spring, Fall**ART 1050 Foundations of 2D Design**

[3 credit hours]

Exploration of design concepts, formal and conceptual skills, materials and color, media manipulation and study of 2-dimensional surfaces. Discussion of contemporary studio practices and critiquing skills included. Web-assisted course. Humanities core course.

**Term Offered:** Spring, Fall**ART 1060 Foundations of 3D Design**

[3 credit hours]

Exploration of design concepts, formal and conceptual skills, materials and color, through media manipulation and study of three-dimensional space. Discussion of contemporary studio practices and critiquing skills included. Web-assisted course. Humanities core course.

**Term Offered:** Spring, Fall**ART 1070 Foundations of Digital Media**

[3 credit hours]

This course introduces students to the basic digital technologies of contemporary art and design. Web-assisted course.

**Term Offered:** Spring, Summer, Fall**ART 1080 Foundations of Drawing I**

[3 credit hours]

Various approaches to drawing intended to develop skills, perception, and visual acuity. Introduction to a broad range of subject matter and a variety of graphic media. Web-assisted course. Humanities core course.

**Term Offered:** Spring, Summer, Fall**ART 1090 Foundations of Drawing II**

[3 credit hours]

Dimensional, perspective and volumetric drawing applied to natural, man-made forms, environment and the figure. Rendering techniques, skills and exploration of media integrated with formal composition. Web-assisted course. Humanities core course.

**Prerequisites:** ART 1080 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 1990 Special Topics in Art**

[3 credit hours]

Group study in studio topics by various instructors. Web-assisted course. May be repeated under different course titles.

**Term Offered:** Spring, Summer, Fall**ART 2010 Graphic Design: Print**

[3 credit hours]

This course covers the basics of graphic design for print media, introducing typography, graphics, and publication design, using bitmap, vector, typography, and page layout programs. This class is a web-assisted course.

**Prerequisites:** ART 1070 with a minimum grade of D-**Term Offered:** Spring**ART 2020 Graphic Design: Web**

[3 credit hours]

This course covers interactive practices in graphic design, utilizing HTML, CSS, creative coding, 2D animation, sound, and video applications for web-based media. This class is a web-assisted course.

**Prerequisites:** ART 1070 with a minimum grade of D-**Term Offered:** Fall**ART 2030 Introduction to Photography**

[3 credit hours]

An introduction to photography as a fine art medium; includes digital and traditional camera operations, printing processes, presentation techniques and historic and contemporary photographic concerns. Web-assisted course..

**Term Offered:** Spring, Summer, Fall**ART 2100 Life Drawing**

[3 credit hours]

Development of visual and technical skills necessary to represent the figure, working from live models. Presentations focused on artistic understanding of the human body in architectural space, proportion, volume, and anatomy. Web-assisted course.

**Prerequisites:** ART 1090 with a minimum grade of D-**Term Offered:** Spring, Fall

**ART 2110 Introduction to Printmaking**

[3 credit hours]

Study of basic print materials and media, including relief, monoprint, planographic and intaglio process, general print shop skills, and safety practices. The course forms the basis for further exploration. Web-assisted course.

**Prerequisites:** ART 1050 with a minimum grade of D- and ART 1080 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 2200 Introduction to Sculpture**

[3 credit hours]

An exploration of the application of traditional methods of sculpture making to additive, subtractive, constructive, and replicative processes with clay, plaster, wood, stone, and metal. Formal and expressive content addressed. Web-assisted course.

**Prerequisites:** (ART 1040 with a minimum grade of D- or ART 1060 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**ART 2210 Introduction to Ceramics**

[3 credit hours]

Basic ceramic techniques explored. Introduction to hand-building, simple mold techniques and the potter's wheel. Basic glaze and clay body formulation and firing procedures. Web-assisted course.

**Term Offered:** Spring, Fall

**ART 2300 Introduction to Painting**

[3 credit hours]

Introduction and overview of painting materials and techniques; may include oil, acrylic, and watercolor media. Explores design concepts, formal and conceptual skills, and color theory. Web-assisted course.

**Prerequisites:** ART 1050 with a minimum grade of D- or ART 1090 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 2800 Visual Literacy-Data Visualization**

[3 credit hours]

This course introduces students to the concepts of visual literacy and data visualization. Students will learn to observe and analyze imagery and data. Web-assisted course.

**Term Offered:** Spring, Fall

**ART 3000 Photography: Topics**

[3 credit hours]

Varying studio topics in fine art photography and digital imaging, including Digital Photography Expanded and B&W photography. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2030 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 3100 Printmaking: Topics**

[3 credit hours]

Studio courses focusing on one of the following disciplines: drawing, painting, or printmaking, within separate class settings. Courses explore various topics and techniques. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2110 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 3110 2D: Topics**

[3 credit hours]

Studio courses in any of the following disciplines: drawing, painting, or printmaking, or mixed media within separate class settings. Courses may explore various concepts and processes relating to the creation of works of art. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2110 with a minimum grade of D- or ART 2300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 3120 Painting: Topics**

[3 credit hours]

Studio course in one of the following disciplines: drawing, painting, or printmaking, within separate class settings. Courses deal with various concepts and topics. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2300 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ART 3200 Sculpture: Topics**

[3 credit hours]

Varying studio topics in 3D art, including the creation of works and the exploration of new models of sculpture including installation. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2200 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ART 3210 Ceramics: Topics**

[3 credit hours]

Varying topics in ceramics creation and processes, including ceramics form execution. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2210 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ART 3400 Concepts in Art, Studio and Theory**

[3 credit hours]

This course surveys advanced theories and practices of contemporary art while creating a forum for engaging visiting artists and the broader art community. The course prepares studio art majors for their degree capstone. Web-assisted course.

**Prerequisites:** ART 1050 with a minimum grade of D- and ARTH 2050 with a minimum grade of D- or ARTH 2060 with a minimum grade of D-

**Term Offered:** Fall

**ART 3850 Gallery Practices**

[3 credit hours]

Workshop covering the planning, installing, promoting, and documenting of exhibitions. Offers hands-on training and directly engages students in all aspects of UT's CVA Gallery operations. May be offered as WAC. Web-assisted course.

**Term Offered:** Spring, Fall

**ART 3900 Advanced Graphic Design:Topic**

[3 credit hours]

Advanced studio courses in graphic and interactive design within separate class settings. Topics such as publication design, identity and branding, merchandise design, data visualization, and environmental graphics may be covered. May be repeated under differing course titles. Web assisted course. Prerequisite: ART 2020 Web-assisted course.

**Prerequisites:** ART 2020 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 3910 Outsider Art and Community Practice**

[3 credit hours]

This course will study the role and advantage of community-based "Supported Studios"; art studios facilitated by practicing artists specifically attuned to the needs of people with disabilities. Students will study the history and contemporary positioning of such creative spaces and the relevant pedagogical imperatives inherent in the delivery of services. Students will also research evolving definitions of "Outsider Art" and "Outsider Artists". A variety of methods of study, including visiting working Supported Studios will be employed.

**Term Offered:** Spring, Fall**ART 3950 Contemporary Design Methods and Practices**

[3 credit hours]

Survey of methods, techniques, and professional practices in new media design including: historical overview, creative and design processes, new media design environments, marketing, commerce, workflow, and collaboration. Web-assisted course. May be offered as WAC

**Term Offered:** Fall**ART 4000 Advanced Photography: Topics**

[3 credit hours]

Advanced studio courses in fine art photography and digital imaging, within separate class settings that may include a variety of processes and topics. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2030 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 4010 Game Design: Topic**

[3 credit hours]

Advanced studio courses in digital game design and interactive media within separate class settings. Courses focus on developing interactive artworks using 2D and 3D game design tools. Topics such as virtual reality, coding, graphics, character design, interface, interaction, and sound may be covered. May be repeated under differing course titles. Web assisted course.

**Prerequisites:** ART 3010 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 4020 Time, Motion, Space: Topics**

[3 credit hours]

Advanced studio topics in time-based new media, within separate class settings that may include a variety of media and topics, such as 3D modeling, rendering, digital video, and compositing. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2010 (may be taken concurrently) with a minimum grade of D- or ART 2020 (may be taken concurrently) with a minimum grade of D-**Term Offered:** Spring, Fall**ART 4100 Advanced Printmaking: Topic**

[3 credit hours]

Advanced studio courses focusing on printmaking and related media within separate class settings. Courses explore various topics and techniques. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2110 with a minimum grade of D- and ART 2300 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 4110 Advanced 2D: Topics**

[3 credit hours]

Advanced studio course in one or more of these disciplines: drawing, painting, printmaking, or mixed media within separate class settings. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2110 with a minimum grade of D- and ART 2300 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 4120 Advanced Painting: Topic**

[3 credit hours]

Advanced studio courses in painting and related media within separate class settings. Courses deal with various concepts and topics. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2110 with a minimum grade of D- and ART 2300 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**ART 4200 Advanced Sculpture: Topic**

[3 credit hours]

Advanced studio courses in 3D form creation that, within separate class settings, address a variety of processes and topics. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 1050 with a minimum grade of D- and ART 1060 (may be taken concurrently) with a minimum grade of D- and ART 1080 with a minimum grade of D- and ART 1090 with a minimum grade of D- and ART 2200 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**ART 4210 Advanced Ceramics: Topic**

[3 credit hours]

Advanced studio topics in 3D art include the creation of works and the further exploration of emerging issues in contemporary ceramics. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2210 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 4300 Bio-Design Challenge**

[3 credit hours]

Interdisciplinary teams research and prototype solutions to complex global challenges. Student teams may include but are not limited to: Biology, Art & Design, or Engineering. Students fabricate experimental design solutions in response to challenges that combine design, biotechnology and biomaterials with a focus on future applications. The course culminates in a locally juried competition, the winning team travels to the annual Biodesign Summit at which students present and compete for prizes in an international forum.

**Term Offered:** Spring, Fall

**ART 4360 Installation Art**

[3 credit hours]

Study of altering a defined physical and psychological space as an art medium. Includes a study of the history of installations.

**Prerequisites:** ART 2200 with a minimum grade of D- or ART 2210 with a minimum grade of D- or ART 2100 with a minimum grade of D- or ART 2110 with a minimum grade of D- or ART 2300 with a minimum grade of D- or ART 2010 with a minimum grade of D- or ART 2030 with a minimum grade of D-

**Term Offered:** Spring, Fall**ART 4370 Wearable Conditions**

[3 credit hours]

In this course, students will experiment with and combine media through technology and traditional construction methods to enhance their abilities to see form and to develop personal and group visual language. Students are encouraged to become more effective and original communicators through the experience of using materials in innovative ways and through the examination of the possibilities of these materials for creative expression.

**Prerequisites:** ART 2200 with a minimum grade of D- or ART 2210 with a minimum grade of D- or ART 2100 with a minimum grade of D- or ART 2110 with a minimum grade of D- or ART 2300 with a minimum grade of D- or ART 2010 with a minimum grade of D- or ART 2030 with a minimum grade of D-

**Term Offered:** Spring, Fall**ART 4380 Mixed Media: Topics**

[3 credit hours]

Studio course in one of the following disciplines: drawing, painting, or printmaking, within separate class settings. Courses deal with various concepts and topics. Web-assisted course. May be repeated under different course titles.

**Prerequisites:** ART 2200 with a minimum grade of D- or ART 2210 with a minimum grade of D- or ART 2100 with a minimum grade of D- or ART 2110 with a minimum grade of D- or ART 2300 with a minimum grade of D- or ART 2010 with a minimum grade of D- or ART 2030 with a minimum grade of D-

**Term Offered:** Spring, Fall**ART 4400 BFA Thesis**

[3 credit hours]

A capstone course to be taken by BFA students during the fall semester that creates a context for accomplishing a professional gallery exhibition with supporting materials. Web-assisted course.

**Term Offered:** Spring, Fall**ART 4410 BA Thesis Project**

[3 credit hours]

A capstone course taken by BAVA students resulting in topic-based projects and published bodies of work relating to their area(s) of focus. Web-assisted course.

**Term Offered:** Spring**ART 4850 Professional Practices**

[3 credit hours]

Professional skills WAC course for advanced art students. Topics include portfolios, resumes, taxes, contracts, shipping, documenting artwork, artists' statements, exhibitions/competitions, galleries, artists' talks and more. Web-assisted course.

**Term Offered:** Fall**ART 4910 Independent Study**

[1-6 credit hours]

Individual study into special studio problems. Weekly critiques. Every semester. Time arranged. Web-assisted course. May be repeated as topic varies.

**Term Offered:** Spring, Summer, Fall**ART 4940 Internship**

[1-4 credit hours]

Student works in professional venue related to a diversity of art fields or endeavors. Web-assisted course. May be repeated for a maximum of 8 credit hours.

**Term Offered:** Spring, Summer, Fall**ART 4950 Design Project: Topics**

[3 credit hours]

Working with AMP students and art history faculty, students will create an exhibition or special project related to topic studied in ARTH 3950. Web-assisted course.

**Prerequisites:** ART 3900 with a minimum grade of D-**Term Offered:** Spring, Fall**ART 4990 Special Studies**

[1-6 credit hours]

Group study in studio topics by various instructors. May be repeated when the topic varies.

## Art Education (AED)

**AED 2100 Art Education for the Pre-Primary and Primary Child**

[3 credit hours]

Focuses on the supporting the young child's capacity to create, perceive and appreciate the visual arts. Orientation to materials and instructional techniques will be explored through studio and gallery instruction with a young child.

**Term Offered:** Spring, Fall**AED 3100 Art Education for the Pre-Primary and Primary Child**

[3 credit hours]

Focuses on the supporting the young child's capacity to create, perceive and appreciate the visual arts. Orientation to materials and instructional techniques will be explored through studio and gallery instruction with a young child.

**Term Offered:** Spring, Fall**AED 3130 Multi-Cultural Approaches For Art Appreciation**

[3 credit hours]

An investigation of innovative methods for teaching multi-cultural understanding through art history and art appreciation. The Toledo Museum of Art's collection will be the focus for the course.

**Term Offered:** Summer, Fall

Multicultural US Diversity

**AED 3300 Crafts In Art**

[3 credit hours]

This course is designed to investigate the philosophy and variety of craft processes used to make art. Topics that may be covered include fibers, metal crafts, ceramics, paper making.

**Term Offered:** Spring, Summer, Fall

**AED 3500 Innovations In Art Education**

[3 credit hours]

An introduction to new directions in secondary art education. Current views of philosophy and psychology are implemented as the rationale for contemporary curricula in art education. Field experience is to be arranged.

**Term Offered:** Spring**AED 3940 Art Field Placements In The Elementary School**

[1-4 credit hours]

Field placement in an elementary school setting allowing the undergraduate student, with art teacher approval, to develop a course of study that will satisfy the special needs of the student in art education.

**Term Offered:** Spring, Summer, Fall**AED 4140 Art Education For The Special Child**

[3 credit hours]

This course introduces and surveys a wide variety of art strategies and instructional adaptations for use with the child with physical, emotional or mental differences.

**Term Offered:** Spring, Fall**AED 4300 Media And Methods In Therapeutic Art**

[3 credit hours]

An investigation into group and individual processes as they relate to art media and methods in therapeutic art will be presented. Experiences in art media will be explored.

**Prerequisites:** AED 4560 with a minimum grade of D-**Term Offered:** Spring**AED 4450 Curriculum In Art Education**

[3 credit hours]

An exploration of discipline-based art education (DBAE) philosophy in the schools. Field placement in the Toledo Museum of Art's Youth program and the area schools will be used to implement the theoretical base.

**Term Offered:** Spring, Fall**AED 4560 Introduction To Therapeutic Art**

[3 credit hours]

This course will introduce students to therapeutic art through investigation of theories in art education and art therapy. Students will explore art media and methods in therapeutic art programming.

**Term Offered:** Fall**AED 4900 Seminar In Professional Development**

[2 credit hours]

This seminar is designed to enhance the student teacher's final preparation for employment. Professional issues, ethical behavior, interview techniques and other processes and concerns involved in entry into the profession will be examined.

**Corequisites:** AED 4930**Term Offered:** Spring, Fall**AED 4930 Student Teaching In Art**

[6-12 credit hours]

Planned field experiences in public school classrooms under the direction of experienced art teachers. Gradual acceptance of full responsibility by student teacher. A scheduled time will be included to facilitating professional practices.

**Prerequisites:** Upper Division with a score of 1**Term Offered:** Spring, Fall**AED 4990 Individual Study In Art Education For The Undergraduate Student**

[1-4 credit hours]

Individual study is designed to provide the student the opportunity to work individually on professional problems under the direction of the art education staff without formal class meetings.

**Term Offered:** Spring, Summer, Fall

## Art History (ARTH)

**ARTH 1500 Art In History**

[3 credit hours]

Introduction to the aesthetic, cultural and social interpretation of works of art and architecture, and to the historical relationships of artists, patrons, and audiences in art's production and purposes. Web-assisted course. Humanities core course. (Not for major credit in Art History, Studio Art or Art Education).

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**ARTH 2050 History of Western Art I**

[3 credit hours]

Introduces students to major styles of western art from prehistoric to Early Renaissance. Students will learn to analyze art in terms of formal, cultural, historical, and iconographic contexts. Web-assisted course.

**Term Offered:** Spring, Fall**ARTH 2060 History of Western Art II**

[3 credit hours]

Introduces students to major styles of western art from the Renaissance through the modern era. Students will learn to analyze art in terms of formal, cultural, historical, and iconographic contexts. Web-assisted course.

**Term Offered:** Spring, Fall**ARTH 2080 History Of Modern Art**

[3 credit hours]

European and American art 1700-1940, from the Rococo through Romanticism, Impressionism, Expressionism, Cubism, Dada, and Surrealism. Web-assisted course. Humanities core course.

**Term Offered:** Spring

Core Arts &amp; Humanities

**ARTH 2200 Ethnographic Art**

[3 credit hours]

Contextual exploration of traditional art forms in the principle cultures of the Americas, Africa and Oceania. Web-assisted course.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**ARTH 2550 History of Graphic Design**

[3 credit hours]

History of Graphic Design introduces students to the history and theory of graphic design from the Roman codex to the modern poster. Topics examined include: how imagery interacts with text aesthetically and visually, the logic and development of typefaces, and the relationship and importance of graphic design to social and political developments throughout history. This three-credit course addresses graphic design from Western cultures and dynamic eras. ARTH 2550 partially fulfills the curricular requirements in Humanities and Fine Arts and is an elective within the Department of Art.

Core Arts &amp; Humanities

**ARTH 2980 Special Topics**

[1-3 credit hours]

Topics in art history selected by instructor; may be repeated when topic varies. Web-assisted course.

**Term Offered:** Spring, Fall**ARTH 3080 The Power of Visual Persuasion**

[3 credit hours]

This course is designed for the non-specialist. The course is intended to increase understanding and appreciation of visual culture through readings, recorded lectures and documentary films, discussion, reflective and critical writing, and a visit to a local or regional museum. The development of cognitive and critical processes, as they relate to visual culture, is emphasized.

**Term Offered:** Spring, Fall**ARTH 3230 Topics In American Art**

[3 credit hours]

Special topics in the history of American art or architecture. May be repeated when topic varies. Web-assisted course. May be offered as WAC.

**Term Offered:** Spring, Fall**ARTH 3250 Topics In Asian Art**

[3 credit hours]

Special topics in the history of Asian art or architecture; may be repeated when topic varies. Web-assisted course.

**Term Offered:** Spring, Fall**ARTH 3300 African Art**

[3 credit hours]

Study of the diversity of African art. The course will emphasize region and style with focus upon the collections of African art in the Toledo Museum of Art. Web-assisted course.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**ARTH 3350 Ancient Art Of The Americas**

[3 credit hours]

A course that focuses on the artifacts produced by the indigenous populations of the Americas before the arrival of Columbus in the New World. Web-assisted course.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**ARTH 3400 Contemporary Art**

[3 credit hours]

This WAC course introduces students to art of the 20th and 21st centuries, relating recent makers and movements to critical, cultural, and social issues. Web-assisted course.

**Term Offered:** Spring, Fall**ARTH 3500 History Of Photography**

[3 credit hours]

An in-depth study of the history of photography. Web-assisted course.

**Term Offered:** Fall**ARTH 3600 History Of New Media**

[3 credit hours]

This course explores the development of technology as an art medium with a focus on significant historical examples from the 19th through the 21st centuries. Web-assisted course.

**Term Offered:** Fall**ARTH 3750 Art and Disease - WAC**

[3 credit hours]

This WAC course considers how objects of material culture (film, photography, painting, sculpture, etc.) have intersected with disease while studying disease-related texts and histories of contagion (e.g., AIDS).

Web-assisted course.

**Term Offered:** Spring**ARTH 3900 Art Museum Practices**

[3 credit hours]

Overview of issues and professional practices in art museums, including curatorial responsibilities, interpretation of collections, conceptualization and design of exhibitions, development, education, marketing, and administration. Web-assisted course.

**Term Offered:** Spring, Fall**ARTH 3950 AMP**

[3 credit hours]

Study of art historical topic theme relating to Toledo Museum of Art works. Precedes ARTH 3960, Exhibition course, but may be taken independently. Web-assisted course. May be repeated when topic varies.

**Term Offered:** Spring, Fall**ARTH 3960 TMA Exhibit**

[3 credit hours]

Working with faculty and museum professionals, students create a Toledo Museum of Art exhibition relating to topic studied in ARTH 3950. Web-assisted course. May be repeated when topic varies. Permission of Instructor.

**Prerequisites:** ARTH 3900 with a minimum grade of D- and ARTH 3950 with a minimum grade of D-**Term Offered:** Spring, Fall**ARTH 3980 Special Studies**

[3-5 credit hours]

Topics in art history selected by the instructor. Web-assisted course. May be repeated when topic varies.

**Term Offered:** Spring, Fall



**ARTH 4500 Contemporary Art And Theory**

[3 credit hours]

A WAC course offering study of 20th and 21st century critical theory in relation to contemporary art makers and social issues, with a consideration of modernist versus postmodernist eras. Web-assisted course.

**Term Offered:** Spring**ARTH 4910 Senior Thesis I**

[2 credit hours]

Directed research in the history of art for the Senior Thesis. May only be taken with consent of instructor; see department for application form. Must be taken consecutively with ARTH 4920, Senior Thesis II. Web-assisted course.

**Term Offered:** Spring, Fall**ARTH 4920 Senior Thesis II**

[2 credit hours]

Writing the Senior Thesis. May only be taken after successful completion of ARTH 4910, Senior Thesis I, and with instructor's consent. See Department for application form. Web-assisted course.

**Prerequisites:** ARTH 4910 with a minimum grade of D-**Term Offered:** Spring, Fall**ARTH 4940 Internship**

[1-4 credit hours]

Student works in professional venue related to a diversity of art fields or endeavors. Web-assisted course. May be repeated for a maximum of 8 credit hours.

**Term Offered:** Spring, Summer, Fall**ARTH 4980 Special Topics**

[1-5 credit hours]

Topics in art history selected by instructor; may be repeated when topic varies. Web-assisted course. May be offered as WAC.

**ARTH 4990 Independent Study In Art History**

[1-4 credit hours]

Independent Study in special problems of art history. Web-assisted course. May be repeated when topic varies.

**Term Offered:** Spring, Summer, Fall

## Arts and Letters (AR)

**AR 1000 First Year Orientation**

[1 credit hour]

Course will introduce new students to the university and college, provide information on requirements, regulations, campus resources and career exploration and help students develop academic skills. It is required of all new students.

**AR 1010 Liberal Arts Lab**

[1 credit hour]

Experienced-based learning course where students explore ideas and concepts through hands-on practice and engaged activities.

**Term Offered:** Spring, Summer, Fall**AR 1120 Liberal Arts Careers**

[2 credit hours]

This class is designed to engage students in discovering their career values and occupational interests, skills, personality style, and behavior and work environment preferences. Students will learn to identify how different disciplines in Arts and Letters contribute to solving various issues and come to recognize ways in which their own talents and interests can be employed in professional and occupational settings. Additionally, students will learn about decision-making, goal-setting, action planning, and resumes.

**Term Offered:** Spring, Fall**AR 4000 General Studies Capstone**

[1 credit hour]

This course provides the opportunity to integrate and reflect on knowledge and experiences gained during completion of the general studies degree with an eye towards post-graduation endeavors such as employment. Topics include how to construct a portfolio and write cover letters, resumes, and prepare for the job market.

**Term Offered:** Spring, Summer, Fall

## Asian Studies (ASST)

**ASST 2100 Introduction to Asian Studies**

[3 credit hours]

Introduction to Asian studies will introduce students to important facet of Asian countries including their culture, historical and modern, social and economic systems. Students will learn the cultural bases of Asian countries or regions. The course will be an integral part of the education of those majoring or minoring in Asian Studies.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**ASST 3010 Issues in Asian Studies**

[3 credit hours]

The course covers various topics in Asian Studies, from some specific topics such as Buddhism to the general area of Asian culture. The particular topic may vary depending on the areas of the instructor and the academic interest of the students. It can also serve various topics offered in the study-abroad program.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**ASST 4910 Directed Research**

[1-4 credit hours]

Directed research on a specific topic in Asian Studies. The topic will vary on the instructor and the interest of student in the field.

**Term Offered:** Spring, Summer, Fall**ASST 4920 Directed Readings**

[1-4 credit hours]

Directed readings in Asian Studies of various natures or special topics in Asian Studies. The topic may vary depending on the areas of the instructor and the academic interest of the students.

## Astronomy (ASTR)

### ASTR 1010 Survey Of Astronomy

[3 credit hours]

Not for major credit; not open to science majors; no credit after 2010, 2020. General astronomy, including appearance of the sky and nature and evolution of the Earth, Moon, solar system, stars, galaxies and the Universe.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

### ASTR 2010 Solar System Astronomy

[3 credit hours]

A quantitative introduction to the contents, origin and evolution of the solar system, as revealed by recent advances in space exploration. High school mathematics at the level of graphs, algebra and elementary logarithms is required.

**Prerequisites:** ACT Math with a score of 22 or MATH SECTION SCORE with a score of 550 or Aleks Math Placement Test with a score of 61 or Aleks Math Placement Retest with a score of 61 or Math - Coll Algebra Placement with a score of 12 or MATH 1320 with a minimum grade of C- or MATH 1330 with a minimum grade of C- or MATH 1340 with a minimum grade of C-

**Term Offered:** Fall

Core Natural Sciences, OT36 Natural Science

### ASTR 2020 Stars, Galaxies, And The Universe

[3 credit hours]

A quantitative introduction to the nature and evolution of stars, galaxies and the universe, as revealed by observation and physical theory. High school mathematics at the level of graphs, algebra and elementary logarithms is required.

**Prerequisites:** ACT Math with a score of 22 or MATH SECTION SCORE with a score of 550 or Aleks Math Placement Test with a score of 61 or Aleks Math Placement Retest with a score of 61 or Math - Coll Algebra Placement with a score of 12 or MATH 1320 with a minimum grade of C- or MATH 1330 with a minimum grade of C- or MATH 1340 with a minimum grade of C-

**Term Offered:** Spring

Core Natural Sciences, OT36 Natural Science

### ASTR 2050 Elementary Astronomy Laboratory

[1 credit hour]

Laboratory exercises and observational measurements in elementary astronomy. Two hours laboratory per week. (not for major credit)

**Term Offered:** Spring, Fall

Core Natural Sciences, OT36 Natural Science

### ASTR 2320 Life In The Universe

[3 credit hours]

The astronomical factors involved in the emergence of life in the universe, the search for extraterrestrial intelligence and the likelihood of advanced civilizations in the Galaxy. May be offered as writing intensive.

**Prerequisites:** ASTR 1010 with a minimum grade of D- or (ASTR 2010 with a minimum grade of D- and ASTR 2020 with a minimum grade of D-)

**Term Offered:** Spring, Fall

### ASTR 2340 New Frontiers In Astronomy

[3 credit hours]

Descriptive treatment of recent developments in astronomy from spacecraft, such as the Hubble Space Telescope, or from the newest, very large ground based telescopes. May be offered as a writing intensive.

**Prerequisites:** ASTR 1010 with a minimum grade of D- or ASTR 2010 with a minimum grade of D- or ASTR 2020 with a minimum grade of D-

**Term Offered:** Spring

### ASTR 3880 Foundations of Astronomy

[4 credit hours]

Positional Astronomy and Time; Telescopes and Optics; Detection and Characterization of Light (Imaging, Photometry and Spectroscopy); Data Reduction and Measurements; Fundamental Techniques of Astronomy (Parallax, Magnitudes, Interstellar Extinction, Doppler Shift and Spectral Line Widths, Stellar Classification, Color-Magnitude and Color-Color Diagrams, Lightcurves, and Redshifts); Measuring Properties of Stars, Star Clusters, Galaxies, and the Universe.

**Prerequisites:** ASTR 2020 with a minimum grade of D- and PHYS 3310 with a minimum grade of D- and CSET 1100 with a minimum grade of D-

**Term Offered:** Spring

### ASTR 4810 Astrophysics I

[3 credit hours]

Spherical coordinate systems, astronomical time, celestial mechanics, the solar system and planetary physics, photometry, radiative transfer, stellar spectra and classification, binary stars and stellar masses.

**Prerequisites:** ASTR 3880 with a minimum grade of D-

**Term Offered:** Fall

### ASTR 4820 Astrophysics II

[3 credit hours]

Stellar structure and evolution, close binaries, origin of the elements, the sun, variable stars, star clusters, the interstellar medium, the Milky Way Galaxy, stellar statistics, galaxy structure and evolution, cosmology.

**Prerequisites:** ASTR 4810 with a minimum grade of D-

**Term Offered:** Spring

### ASTR 4880 Astrophysical Measurements

[3 credit hours]

Astronomical, optical and electronic principles of operation of a modern astronomical observatory. Observing with the 1 meter telescope of Ritter Observatory, introduction to reduction, analysis and interpretation of astrophysical data. Six hours laboratory per week. May be offered as writing intensive.

**Prerequisites:** ASTR 3880 with a minimum grade of D-

**Term Offered:** Fall

## Bioengineering (BIOE)

### BIOE 1000 Orientation and Introduction to Bioengineering Computing

[0-2 credit hours]

Application of graphical design and numerical analysis software required for the solution of bioengineering problems. This course also provides a one-semester overview of key engineering principles and concepts.

**Term Offered:** Fall

**BIOE 1010 Professional Development**

[1 credit hour]

Preparation for co-op and full-time employment in industry. Topics include resume writing, interviewing skills, compensation and benefits, social protocol and corporate ethics, biomedical ethics, design and quality control processes and governmental regulation.

**Prerequisites:** BIOE 1200 with a minimum grade of D- and ENGL 1110 with a minimum grade of D

**Term Offered:** Spring

**BIOE 1200 Introduction to Bioengineering Applications**

[0-2 credit hours]

Application of graphical design and numerical analysis software required for the solution of bioengineering problems. This course also provides a one-semester overview of key engineering principles and concepts.

**Prerequisites:** BIOE 1000 with a minimum grade of D-

**Term Offered:** Spring

**BIOE 1410 Freshman Design Innovation I**

[1 credit hour]

Basic concepts for biomedical device design and development and incorporating innovation and entrepreneurial mindset in freshman bioengineering students using team- and project-based learning experiences.

**Term Offered:** Fall

**BIOE 1420 Freshman Design Innovation II**

[1 credit hour]

Basic concepts for biomedical device design and development and incorporating entrepreneurial mindset in freshman bioengineering students using team- and project-based learning experiences.

**Prerequisites:** BIOE 1410 with a minimum grade of D-

**Term Offered:** Spring

**BIOE 2100 Bioengineering Thermodynamics**

[0-3 credit hours]

Principles of thermodynamics and conservation of mass applied to living systems, biomedical devices and bioprocesses.

**Prerequisites:** PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D- and CHEM 1240 with a minimum grade of D- and MATH 2850 with a minimum grade of D- or MATH 2950 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 2200 Biomaterials**

[3 credit hours]

Physical and chemical properties of materials commonly used in medicine. Topics include inflammatory, immunogenic, carcinogenic and toxicologic responses within host tissues as well as testing and evaluation strategies for effective use of materials in medicine and biology.

**Prerequisites:** PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D- and (MATH 1860 with a minimum grade of D- or MATH 1930 with a minimum grade of D-) and CHEM 1240 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 2300 Biomedical Quality Control**

[3 credit hours]

Statistical methods for the design, testing and manufacturing of medical devices# the application of statistical methods to quality systems and process validation.

**Prerequisites:** (MATH 1860 with a minimum grade of D- or MATH 1930 with a minimum grade of D-)

**Term Offered:** Spring

**BIOE 3110 Introduction To Biomechanics**

[3 credit hours]

Mechanics of the human musculoskeletal system and its joints. Basic concepts for deformable body mechanics, including stress and strain analysis, viscoelasticity, and applications to common problems in orthopedic biomechanics.

**Prerequisites:** (CIVE 1150 with a minimum grade of D- and BIOL 2170 with a minimum grade of D-)

**Term Offered:** Spring

**BIOE 3300 Biomedical Electronics**

[3 credit hours]

Measurement circuits, signal analysis, and computer design in biological systems and medicine. Electronic devices, digital devices, amplifier design and instrumentation safety.

**Prerequisites:** (EECS 2300 with a minimum grade of D- and BIOE 1200 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**BIOE 3400 Biotransport Phenomena**

[3 credit hours]

The quantitative description of momentum transport (viscous flow) and mass transport (convection and diffusion) in living systems. Application of engineering methods to model and quantify aspects of bioengineering systems.

**Prerequisites:** BIOE 2100 with a minimum grade of D- and MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 3500 Bioprocessing Laboratory**

[0-3 credit hours]

Introduction to processing techniques used in biotechnology and pharmaceutical industries. The process from concept to product is covered, including the creation and culture of recombinant organisms to synthesize a protein product and the extraction, purification, and assay of the final product.

**Prerequisites:** (BIOL 2170 with a minimum grade of D- and BIOL 2180 with a minimum grade of D- and CHEM 1240 with a minimum grade of D-) and (MATH 1860 with a minimum grade of D- or MATH 1930 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**BIOE 3940 Co-Op Experience**

[1 credit hour]

Approved co-op experience. Course may be repeated.

**Prerequisites:** BIOE 1010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**BIOE 3950 Co-Op Experience**

[1 credit hour]

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

**Prerequisites:** BIOE 3940 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**BIOE 4100 Physiology And Anatomy For Bioengineers**

[3 credit hours]

Review and study of general physiological principles and bioengineering perspectives of the human circulatory, respiratory, digestive, immune, nervous, muscular and excretory systems.

**Prerequisites:** BIOL 2170 with a minimum grade of D- and BIOL 2180 with a minimum grade of D- and CHEM 1240 with a minimum grade of D- and EECS 2300 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4110 Advanced Biomechanics**

[3 credit hours]

The goal of this course is for students to be able to describe motions of the human body. Three-dimensional analysis and measurements of human body movements including kinematics, kinetics and energetics of human gait, anthropometry and application to bioengineering and orthopedics will be presented. Euler angles and the screw axis method will be used to describe three-dimensional motions.

**Prerequisites:** BIOE 3110 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4120 Biosignal Processing**

[3 credit hours]

Design and application of analog and digital signal processors to biomedical signals. Covered topics include the Laplace transform, analog filter design, continuous and discrete Fourier transform, and FIR/IIR digital filter design.

**Prerequisites:** BIOE 1000 with a minimum grade of D- and EECS 2300 with a minimum grade of D- and MATH 2860 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4140 Biomedical Instrumentation Laboratory**

[0-2 credit hours]

Design and construction of medical instrumentation, including aspects of signal and image processing, computer integration, and software development. Written skills are emphasized through laboratory report organization, documentation of results, error analysis and interpretation of findings.

**Prerequisites:** BIOE 3300 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4320 Advanced Biomedical Quality Control**

[3 credit hours]

Advanced statistical methods for the design, testing and manufacturing of medical devices; the application of advanced statistical methods to quality systems and process validation.

**Prerequisites:** BIOE 4300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4410 Bioengineering Design Project I**

[3 credit hours]

This course integrates the engineering and life science backgrounds of senior bioengineering students through the presentation of design principles for problems in biomechanical, bioelectrical, biochemical and biological systems. Oral and written communication, engineering economics and business plans are reviewed.

**Prerequisites:** MATH 2860 with a minimum grade of D- and EECS 2300 with a minimum grade of D- and CIVE 1150 with a minimum grade of D- and BIOE 3940 with a minimum grade of D- and BIOE 2100 with a minimum grade of D- and (BIOE 2300 with a minimum grade of D- or BIOE 4300 with a minimum grade of D-) and BIOE 3500 with a minimum grade of D- and BIOE 2200 with a minimum grade of D- and BIOE 1200 with a minimum grade of D- and BIOE 1420 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4420 Bioengineering Design Project II**

[3 credit hours]

A continuation of BIOE 4410. Teams of senior bioengineering students solve problems in biomechanical, bioelectrical, biochemical and biological systems through a design project. Ethics discussions, testing and evaluation of designs, progress reports, oral presentations and a written final report are required.

**Prerequisites:** BIOE 3110 with a minimum grade of D- and BIOE 3400 with a minimum grade of D- and BIOE 3300 with a minimum grade of D- and BIOE 4140 with a minimum grade of D- and BIOE 4100 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4620 Biochemical Engineering**

[3 credit hours]

The application of engineering principles to the design and analysis of biological processes that employ living organisms for the production of biochemicals.

**Prerequisites:** BIOE 3500 with a minimum grade of D- and BIOE 3400 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4630 Bioseparations**

[3 credit hours]

Introduction to, analysis and industrial design of processes required to separate and purify proteins and other biological compounds for the downstream processing of bioreactor products. The separations techniques will include filtration, chromatography and crystallization.

**Prerequisites:** BIOE 3400 with a minimum grade of D- or CHEE 3120 with a minimum grade of D-

**Term Offered:** Fall

**BIOE 4640 Medical Imaging**

[3 credit hours]

Mathematics and physics underlying major medical imaging modalities including X-ray radiography and computerized tomography (CT), magnetic resonance imaging (MRI), nuclear medicine imaging, and ultrasound imaging.

**Prerequisites:** (BIOE 2300 with a minimum grade of D- or BIOE 4300 with a minimum grade of D-) and MATH 2860 with a minimum grade of D- and PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOE 4710 Biomechanics Of Soft And Hard Tissues**

[3 credit hours]

Composite and hierarchical models bones; models of bone remodeling. Soft tissues models: linear and nonlinear viscoelasticity, Fung's quasilinear viscoelastic theory. Biphasic and triphasic models and mechano-ionic interactions.

**Prerequisites:** BIOE 3110 with a minimum grade of D-**Term Offered:** Fall**BIOE 4730 Computational Bioengineering**

[3 credit hours]

Introduction to and utilization of computational packages for bioengineering applications. Introduction to finite element analysis and applications in biochemical, biofluidics, bioheat transfer, optimization.

**Prerequisites:** (BIOE 3110 with a minimum grade of D- and BIOE 1200 with a minimum grade of D-)**Term Offered:** Spring**BIOE 4740 Tissue Engineering**

[3 credit hours]

Application of principles from engineering and the life sciences toward the development of biological substitutes that restore, maintain or improve tissue function.

**Prerequisites:** (BIOE 2200 with a minimum grade of D- and BIOE 4100 with a minimum grade of D-)**Term Offered:** Spring, Fall**BIOE 4750 Experimental Methods In Orthopedic Biomechanics**

[3 credit hours]

This course provides students with experience in experimental techniques used in orthopaedics and in the study of the musculoskeletal system including mechanical testing of different materials, experimental and analytical methods for stress analysis, strain gages, methods used in human motion analysis to include motion capture, force pressure plates and electromyography. Students will learn to analyze human motion by capturing movements of their choice and will then conduct a biomechanical analysis to quantitatively describe their capture movements.

**Prerequisites:** BIOE 3110 with a minimum grade of D- or CIVE 1160 with a minimum grade of D-**Term Offered:** Spring, Fall**BIOE 4830 Additive Manufacturing**

[3 credit hours]

Additive manufacturing (AM) is a method of manufacturing that has been growing rapidly. In this course the students will learn about various AM technologies. They will also work with the required design software packages to create 3D models and 3D-print objects from the designed models.

**Prerequisites:** MIME 2650 (may be taken concurrently) with a minimum grade of D- or BIOE 1000 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**BIOE 4980 Bioengineering Special Topics**

[1-3 credit hours]

Selected subjects in the field of bioengineering with intensive investigation of the recent literature in a few areas of special interest to the class and the professor.

**Term Offered:** Spring, Fall**BIOE 4990 Bioengineering Independent Study**

[1-3 credit hours]

The student, under the guidance of their research adviser, explores in-depth specific areas or topics related to their research.

**Term Offered:** Spring, Summer, Fall

## Biology (BIOL)

**BIOL 1120 Survey Of Biology**

[3 credit hours]

A survey of major biological principles and phenomena in various plants and animals with emphasis on man. (not for major credit) .

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**BIOL 1220 Survey Of Biology Laboratory**

[1 credit hour]

(Not for major credit) A series of laboratory exercises that supplement the material discussed in BIOL 1120.

**Corequisites:** BIOL 1120**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

**BIOL 2010 Major Concepts In Biology**

[3 credit hours]

This course will discuss topics related to the major concepts of biology such as evolution, the cell, the gene and homeostasis. This course is designed for students majoring in science, engineering or other fields that require biology as a prerequisite who have not had sufficient preparation to begin the Fundamentals of Life Science series (BIOL 2150 or BIOL 2170).

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

**BIOL 2050 Fundamentals of Neuroscience I**

[3 credit hours]

Introduction to the structure and function of the nervous system at cellular and anatomical levels, with an emphasis on neuronal communication, information flow, and integration among major nervous system components

**Prerequisites:** BIOL 2170 with a minimum grade of C and CHEM 1230 with a minimum grade of C**Term Offered:** Spring, Fall**BIOL 2150 Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation**

[4 credit hours]

An introduction to the diversity of multicellular life on earth, evolution and physiological adaptations.

**Prerequisites:** BIOL 2010 with a minimum grade of C or CHEM 1090 with a minimum grade of C or CHEM 1230 with a minimum grade of C or ACT Composite with a score of 21 or BIOL 2170 with a minimum grade of C or Aleks Chem Placement Highest with a score of 50**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**BIOL 2160 Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation**

[1 credit hour]

A series of laboratory exercises which supplement the material discussed in BIOL 2150.

**Corequisites:** BIOL 2150**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**BIOL 2170 Fundamentals of Life Science: Biomolecules, Cells, and Inheritance**

[4 credit hours]

A general introduction to cell structure and function, energy processing in plants and animals, basic genetics, molecular biology and development.

**Prerequisites:** CHEM 1090 with a minimum grade of C or CHEM 1230 with a minimum grade of C or BIOL 2010 with a minimum grade of C or BIOL 2150 with a minimum grade of C or ACT Composite with a score of 21 or Aleks Chem Placement Highest with a score of 50**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**BIOL 2180 Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance**

[1 credit hour]

A series of laboratory exercises which supplement the material discussed in BIOL 2170.

**Corequisites:** BIOL 2170**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**BIOL 2910 Biological Research**

[1 credit hour]

A discussion/demonstration of opportunities for undergraduate research in Biology at the University of Toledo and elsewhere.

**Term Offered:** Spring**BIOL 2980 Special Topics in Biology**

[1-4 credit hours]

Selected topics in biology for biology majors and non-majors.

**Prerequisites:** ENGL 1110 with a minimum grade of D- or MATH 1180 with a minimum grade of D-**BIOL 3010 Molecular Genetics**

[3 credit hours]

The principles of heredity at the molecular level, covering gene and chromosome structure, replication and repair, recombination, control of gene expression, control of cell division.

**Prerequisites:** BIOL 2170 with a minimum grade of C and (CHEM 1230 with a minimum grade of C or CHEM 1240 with a minimum grade of C-)**Term Offered:** Spring, Summer, Fall**BIOL 3020 Molecular Genetics Laboratory**

[2 credit hours]

A laboratory course in experimental molecular biology involving gene cloning, analysis of cloned product and other techniques of modern molecular genetics.

**Corequisites:** BIOL 3010**Term Offered:** Spring, Fall**BIOL 3030 Cell Biology**

[3 credit hours]

A study of the internal organization of the eukaryotic cell, organelle and membrane function, cell-cell signaling, cell movement, cell adhesion, and the extracellular matrix.

**Prerequisites:** BIOL 2170 with a minimum grade of C and CHEM 1240 with a minimum grade of C-**Term Offered:** Spring, Summer, Fall**BIOL 3040 Cell Biology Laboratory**

[2 credit hours]

Laboratory exercises involving cell culturing, protein analysis, protein localization and other techniques of modern cell biology.

**Corequisites:** BIOL 3030**Term Offered:** Spring, Summer, Fall**BIOL 3050 Fundamentals of Neuroscience II**

[3 credit hours]

Exploration of the major neural mechanisms that generate, transform, integrate, and store information, drive behavior, maintain physiological homeostasis, and cause neurological disease when compromised.

**Prerequisites:** (BIOL 2050 with a minimum grade of C or NSCI 2050 with a minimum grade of C) and CHEM 1240 with a minimum grade of C**Term Offered:** Fall**BIOL 3060 Neuroscience Laboratory**

[2 credit hours]

A practical course providing training in foundational laboratory techniques in the neurosciences.

**Prerequisites:** NSCI 3050 with a minimum grade of C and BIOL 2180 with a minimum grade of C**Term Offered:** Spring**BIOL 3070 Human Physiology**

[3 credit hours]

Detailed structural and functional analysis of the human endocrine, nervous, reproductive, circulatory, respiratory, digestive and excretory systems. An emphasis will be placed on system-system interactions and homeostatic mechanisms.

**Prerequisites:** BIOL 3030 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**BIOL 3090 Developmental Biology**

[3 credit hours]

Lectures on molecular and cellular interactions in animal and plant embryogenesis and development.

**Prerequisites:** BIOL 3030 with a minimum grade of C**Term Offered:** Spring, Fall**BIOL 3100 Developmental Biology Laboratory**

[1 credit hour]

An analysis of development by biochemical and biological methods using live materials.

**Prerequisites:** BIOL 3090 (may be taken concurrently) with a minimum grade of C**Term Offered:** Fall**BIOL 3210 Human Nutrition**

[3 credit hours]

Lectures covering nutrition and transport in humans, role of nutrition in growth and development, nutritional diseases.

**Prerequisites:** BIOL 3070 with a minimum grade of C**Term Offered:** Spring, Fall

**BIOL 3510 Comparative Vertebrate Anatomy**

[4 credit hours]

A comparative treatment of the evolutionary and developmental history of the major vertebrate organ systems.

**Prerequisites:** (BIOL 2150 with a minimum grade of C and BIOL 2160 with a minimum grade of C and BIOL 2170 with a minimum grade of C and BIOL 2180 with a minimum grade of C)

**Term Offered:** Spring, Fall

**BIOL 3910 Research Project Laboratory**

[2-3 credit hours]

Provides hands-on authentic research experience and comprehensive understanding of the scientific process. May be repeated once for credit, a maximum of 3 hours may be applied to BIOL elective credits in the major or minor.

**Prerequisites:** BIOL 2170 with a minimum grade of D- and BIOL 2180 with a minimum grade of D-

**Term Offered:** Spring, Fall

**BIOL 4010 Molecular Biology**

[3 credit hours]

Analysis of the regulatory mechanisms for nucleic acid and protein synthesis; genome structure; recombination; genetic damage and repair.

**Prerequisites:** BIOL 3030 with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 4030 Microbiology**

[3 credit hours]

Lectures on the principles of modern microbiology and virology, including metabolism, growth, cellular morphology, genetics and host parasite relationships. Bacterial and viral diseases will be illustrated.

**Prerequisites:** BIOL 3030 with a minimum grade of C and CHEM 2410 with a minimum grade of C-

**Term Offered:** Spring, Fall

**BIOL 4031 Cell Biology of Neurons and Glia**

[3 credit hours]

An advanced course examining the cell biology of neurons and glia in normal nervous system function and disease.

**Prerequisites:** NSCI 3050 with a minimum grade of C and BIOL 3030 with a minimum grade of C

**Term Offered:** Fall

**BIOL 4040 Microbiology Laboratory**

[1 credit hour]

Laboratories utilizing basic microbiological techniques and illustrating principles of growth, identification and genetics and control of microbes.

**Prerequisites:** BIOL 4030 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 4050 Immunology**

[3 credit hours]

Lectures on the chemical, genetic and cellular basis of the immune response.

**Prerequisites:** BIOL 3030 with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 4060 Immunology Laboratory**

[1 credit hour]

Laboratory studies of the immune response.

**Corequisites:** BIOL 4050

**Term Offered:** Spring, Fall

**BIOL 4090 Cancer Biology**

[3 credit hours]

Introduction to carcinogenesis and the cellular and molecular features of malignancy. Methods to diagnose and treat malignancies will also be presented.

**Prerequisites:** (BIOL 3030 with a minimum grade of C and BIOL 3010 with a minimum grade of C)

**Term Offered:** Fall

**BIOL 4110 Human Genetics and Genomics**

[3 credit hours]

A systematic survey of genetic variation in man with emphasis on modern research methodology including genomics.

**Prerequisites:** BIOL 3030 with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 4210 Molecular Basis of Disease**

[3 credit hours]

Examines the genetic, molecular, and biochemical defects associated with some of the most common human diseases. Includes a review of current research into the molecular causes of selected diseases.

**Prerequisites:** BIOL 3010 with a minimum grade of C and BIOL 3030 with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 4230 Comparative Animal Physiology**

[3 credit hours]

Lectures on the comparative and environmental physiology of vertebrates and invertebrates including metabolism, temperature regulation, respiration, circulation, excretion and osmotic regulation.

**Prerequisites:** (BIOL 3030 with a minimum grade of C and BIOL 3070 with a minimum grade of C)

**Term Offered:** Spring

**BIOL 4250 Introduction to Neurobiology**

[3 credit hours]

An introduction to the molecular, genetic and cellular aspects of neurobiology in humans and model organisms. Topics include neuronal physiology and signaling, neural development, sensation, muscle control, learning and memory.

**Prerequisites:** BIOL 3030 with a minimum grade of C

**Term Offered:** Spring, Fall

**BIOL 4330 Parasitology**

[3 credit hours]

A study of the host-parasite interaction including aspects of parasite morphology, taxonomy, development and ecology.

**Prerequisites:** (BIOL 2150 with a minimum grade of C and BIOL 2170 with a minimum grade of C)

**Term Offered:** Spring, Fall

**BIOL 4700 Biological Literature And Communication**

[3 credit hours]

A writing intensive course that focuses on reading original literature in biology in a variety of formats. Required of all biology majors.

**Prerequisites:** BIOL 3030 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**BIOL 4790 Biology Field Trip**

[2-4 credit hours]

Faculty directed course that incorporates extensive field experience and individual projects.

**Term Offered:** Spring

**BIOL 4910 Undergraduate Research**

[1-3 credit hours]

Faculty directed research. Both oral and written reports of results required.

**Term Offered:** Spring, Summer, Fall**BIOL 4940 Extramural Research**

[1-4 credit hours]

Prior consent of both the department and the proposed supervisor. Scientist-supervised study of research done in an extramural research institute or scientific laboratory. Written and oral reports to the department required. Maximum of 6 hours may count toward BIOL electives.

**Prerequisites:** (BIOL 2150 with a minimum grade of C and BIOL 2170 with a minimum grade of C)**Term Offered:** Spring, Summer, Fall**BIOL 4950 Internship In Biology**

[1-12 credit hours]

Supervised practical experience in the field of biology. Maximum of 6 hours may be used as biology elective credit for BS degree.

**Term Offered:** Spring, Summer**BIOL 4980 Advanced Topics In Biology**

[1-3 credit hours]

An advanced course for Biology majors in an important area of biology. May be repeated for credit under different specialty numbers (topics).

**Term Offered:** Spring**BIOL 4990 Independent Study In Biology**

[1-3 credit hours]

Faculty directed readings or projects in a specific area of biology.

**Term Offered:** Spring, Summer, Fall

## Business Administration (BUAD)

**BUAD 1000 Orientation For Business Students**

[1 credit hour]

Introduction to the University community. Strategies for successful college transition are explored.

**Term Offered:** Spring, Fall**BUAD 1010 Introduction To Business**

[3 credit hours]

Introduction to the various functional areas of business, the critical role business plays in the economy, the impact of globalization and the performance of business functions.

**Term Offered:** Spring, Summer, Fall**BUAD 1020 Micro-Computer Applications In Business**

[3 credit hours]

Course provides an overview of the role of micro-computers and information systems in business applications. It provides good training in word processing and spreadsheets for problem solving.

**Term Offered:** Spring, Summer, Fall**BUAD 2000 Career Development I**

[1 credit hour]

This course will assist students with self-assessment, exploring career options and developing a resume. Skills in communicating, listening, organizing and supervising are some of the areas required for long-term career success that are covered.

**Prerequisites:** BUAD 1000 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**BUAD 2020 Information Technology Management**

[3 credit hours]

The role of computers and information systems in business decision-making, particularly with regard to achieving key business goals such as competitive advantage, operational efficiency, and customer satisfaction in today's digital global economy, will be carefully examined. The student is also expected to become proficient in applying a range of software tools, such as SAP, advanced Excel, Microsoft Access, and Vizio, for business decision making and problem solving.

**Prerequisites:** BUAD 1020 with a minimum grade of D- or CMPT 1100 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**BUAD 2030 Executive Communication Essentials**

[3 credit hours]

Skills-based course equips the student to effectively network with business professionals, make oral presentations alone and in teams, lead meetings, and write for a business audience. Prerequisite: Sophomore standing

**Term Offered:** Spring, Summer, Fall**BUAD 2040 Financial Accounting Information**

[3 credit hours]

This course is an introduction to financial accounting from the perspective of a financial statement user. Where appropriate, it provides a small and mid-sized company's perspective.

**Term Offered:** Spring, Summer, Fall**BUAD 2050 Accounting For Business Decision-Making**

[3 credit hours]

This course is an introduction to management accounting, including the use and limitations of cost-volume-profit analysis for fundamental decisions concerning products, services and activities.

**Prerequisites:** BUAD 2040 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**BUAD 2060 Business Statistics**

[3 credit hours]

Course will cover statistical concepts of data representations, probability, probability distributions, sampling theory, interval estimation, and hypothesis testing. The collection and analysis of data for business decision-making using spreadsheet or other tools such as projects/cases where appropriate.

**Prerequisites:** (MATH 1260 with a minimum grade of D- or MATH 1320 with a minimum grade of D-) or MATH 1340 with a minimum grade of D- or MATH 1730 with a minimum grade of D- or MATH 1750 with a minimum grade of D- and (BUAD 1020 with a minimum grade of D- or CMPT 1100 with a minimum grade of D-) or MATH 1850 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall



**BUAD 2070 Business Analytics**

[3 credit hours]

Course will cover predictive analytics tools such as linear regression, forecasting, data mining and prescriptive analytics tools such as linear programming, simulation and decision analysis. Will emphasize applications of business analytics using spreadsheet, projects/cases where appropriate.

**Prerequisites:** (BUAD 2060 with a minimum grade of D- or MATH 2600 with a minimum grade of D- or MATH 2630 with a minimum grade of D-) and (MATH 1320 with a minimum grade of D- or MATH 1340 with a minimum grade of D- or MATH 1730 with a minimum grade of D- or MATH 1260 with a minimum grade of D- or MATH 1750 with a minimum grade of D- or MATH 1850 with a minimum grade of D-) and (BUAD 1020 with a minimum grade of D- or CMPT 1100 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall**BUAD 2080 Global Environment Of Business**

[3 credit hours]

This course covers the global environmental challenges impacting businesses. Topics include globalization forces, country differences in political economy and culture, cross-border trade and investment, regional economic integration, and monetary systems.

**Term Offered:** Spring, Summer, Fall**BUAD 2940 Entry-level Internship in Business Administration**

[3 credit hours]

Students who have not decided on a specific major or who are not yet of junior standing may elect to take an internship for credit and use it as a business elective. This will not substitute for any required business course and does not prohibit juniors and seniors from taking an internship in their declared major.

**Term Offered:** Spring, Summer, Fall**BUAD 3000 Career Development II**

[1 credit hour]

This course will assist students in developing job search skills necessary to obtain an internship and full-time position. Skills covered include resume enhancement, cover letter design, networking, informational interviewing, interview preparation and professional dress.

**Prerequisites:** BUAD 2000 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**BUAD 3010 Principles Of Marketing**

[3 credit hours]

The general purpose of this course is to provide a basic understanding of what marketing is about including marketing management, and the marketing environment. The course will examine issues such as marketing research, consumer behavior, segmentation, targeting, and positioning strategies, product strategy, pricing strategy, distribution strategy, promotional strategy, new product development, branding, advertising, sales promotion, and public relations.

**Prerequisites:** ECON 1200 with a minimum grade of D- or MIME 2600 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**BUAD 3020 Principles Of Manufacturing And Service Systems**

[3 credit hours]

This course provides an overview of the functions, problems, solution techniques and decision making processes within the manufacturing and service environment. Topics include concept of supply chain, sales and operations planning, MRP, materials management, quality management, and project management.

**Prerequisites:** BUAD 2060 with a minimum grade of D- or MATH 2600 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**BUAD 3030 Managerial And Behavioral Processes In Organizations**

[3 credit hours]

Introduction to managerial and organizational concepts designed to develop knowledge, attitudes, techniques and skills in creating and managing innovative, adaptive organizations. Interactive exercises, videos, cases, discussions and lectures will be used.

**Term Offered:** Spring, Summer, Fall**BUAD 3040 Principles Of Financial Management**

[3 credit hours]

This course help students develop the skills necessary to understand how financial managers make value-maximizing decisions in their organization. Content stresses fundamentals of financial analysis, short and long-term investments, time value of money, stock and bond valuation, risk and return, and corporate structure.

**Prerequisites:** (BUAD 2040 with a minimum grade of D- or ACTG 1040 with a minimum grade of D-) and BUAD 2060 (may be taken concurrently) with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**BUAD 3050 Information Technology Management**

[3 credit hours]

The role of computers and information systems in business decision-making will be carefully examined. The student is expected to develop computer-based applications for business decision making and problem solving through the use of state of the art software, including advanced spreadsheets, database and web design tools.

**Prerequisites:** BUAD 1020 with a minimum grade of D- or CMPT 1100 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**BUAD 3470 The Legal And Ethical Environment Of Business**

[3 credit hours]

The nature of the law and the formation and application of Legal Principles; the Legal and Ethical Environment in which business operates; regulation of commerce and competition through Contracts, Torts and the Uniform Commercial Code.

**Term Offered:** Spring, Summer, Fall**BUAD 3500 Sustainable Business Practices**

[3 credit hours]

This course examines the current state of business practice through the lens of sustainability. Coverage includes models and systems that businesses are using to address the social, environmental and economic challenges faced by our global community.

**BUAD 4020 Senior Business Policy Forum**

[3 credit hours]

This course integrates functional business knowledge learned in the core and stresses their interconnectedness and interrelationships. Students will develop and implement strategies in response to changes in the external environment.

**Prerequisites:** (BUAD 3010 (may be taken concurrently) with a minimum grade of D- and BUAD 3020 (may be taken concurrently) with a minimum grade of D- and BUAD 3030 with a minimum grade of D- and BUAD 3040 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

**BUAD 4940 Internship in Business Administration**

[3 credit hours]

Students who have not decided on a specific major or who wish to complete an additional internship for credit may use this course as a business elective. This will not substitute for any required business course and does not prohibit students from taking an internship in their declared major.

**Term Offered:** Spring, Summer, Fall

## Business Analysis (BANS)

**BANS 3060 Managerial Economics**

[3 credit hours]

Applications of economic concepts and analytical techniques to business decisions and operations, including pricing and product management, market segmentation, technological development and the regulatory environment.

**Prerequisites:** (ECON 1150 with a minimum grade of D- and ECON 1200 with a minimum grade of D-) or ECON 1880 with a minimum grade of D-

**Term Offered:** Fall

**BANS 3070 Business Fluctuations And Outlooks**

[3 credit hours]

Course focuses on the dynamics of business cycles and economic processes, and how they relate to business. Economic outlooks are examined through key indicators, cases, statistical analyses, and computer applications.

**Prerequisites:** (ECON 1150 with a minimum grade of D- and ECON 1200 with a minimum grade of D-) or ECON 1880 with a minimum grade of D-

**Term Offered:** Spring

## Business Law (BLAW)

**BLAW 3550 Legal And Safety Compliance Issues In Human Resource Management**

[3 credit hours]

Introduction of the issues and challenges facing human resource specialists, generalists and managers in organizations. Legal, social and political aspects of human resource management, as well as compliance requirements for OSHA and other safety laws, are discussed.

**Prerequisites:** BUAD 3030 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**BLAW 3570 The Laws Of Structuring And Operating A Business**

[3 credit hours]

The role of law in structuring and operating business choices of sole proprietorship, agency, partnership, limited partnership, close private corporation, large public corporation, limited liability corporation and negotiable instruments law.

**Term Offered:** Spring, Summer, Fall

**BLAW 4570 Legal And Ethical Aspects Of Managing Innovation And Technology**

[3 credit hours]

This course examines intellectual property systems and presents management options for the protection of intellectual property. Technology's legal and ethical aspects are covered, including case studies on specific technological innovations and products.

**Prerequisites:** (BUAD 3030 with a minimum grade of D- and BUAD 3470 with a minimum grade of D-)

**Term Offered:** Spring

**BLAW 4580 Detection And Prevention Of Deceptive Business Practices**

[3 credit hours]

The course prepares the student to prevent deceptive and fraudulent practices in business, including kinds and definitions of deception and fraud, history, legal aspects, legislation, detection and prevention.

**Prerequisites:** BUAD 3470 with a minimum grade of D-

**Term Offered:** Fall

**BLAW 4900 Cannabis Law**

[3 credit hours]

This online seminar on Cannabis, which addresses both Marijuana and Hemp, provides a practical guide for managers in navigating laws and regulations related to Cannabis use, distribution and sale; the Legal Environment in which the Cannabis industry and Cannabis businesses operate as well as the ethics supporting the legalization of Cannabis in the United States and states.

**Term Offered:** Spring, Fall

## Business Management Technology (BMGT)

**BMGT 1010 Business Principles**

[3 credit hours]

An introduction to the world of business focusing on an overview of business operations with special emphasis on management, marketing, accounting and finance.

**Term Offered:** Spring, Summer, Fall

**BMGT 1500 Workplace Communication And Presentations**

[3 credit hours]

Covers all aspects of communicating in the workplace including oral, written and group communications. Specific subjects covered include composing agendas, conducting interviews and organizing meetings. Students will learn a computer graphics program and prepare a presentation.

**Term Offered:** Spring, Summer, Fall

**BMGT 1540 Organizational Behavior**

[3 credit hours]

This course will address the impact of individual and group behavior on organizations. Topics covered include downsizing, stakeholder management, network organizations, participative management approaches and the quality movement.

**Term Offered:** Spring, Summer, Fall**BMGT 2010 Workplace Management**

[3 credit hours]

Covers issues dealing with managing a company in a predominantly service-oriented marketplace. Topics include training employees to deal with customers/clients, creating a customer-friendly business environment, problem-solving and strategic planning.

**Term Offered:** Spring, Summer, Fall**BMGT 2020 Human Resource Development**

[3 credit hours]

Explores the functions of Human Resource development that focus on training and employee development with special emphasis on improving the quality of work life.

**Term Offered:** Spring, Summer, Fall**BMGT 2030 Supervision**

[3 credit hours]

Explores the role of first-line managers in organizations with special emphasis on the responsibilities of supervisors. These responsibilities include delegation, communication, problem-solving, training and leading.

**Term Offered:** Spring, Fall**BMGT 2050 Small Business Management**

[3 credit hours]

Examines entrepreneurship with a special emphasis on formulating, developing and operating a small business.

**Term Offered:** Spring, Fall**BMGT 2110 Managing In A Global Economy**

[3 credit hours]

Students will examine one particular industry and learn the various economic factors associated with operating a business in an international setting.

**Term Offered:** Spring, Summer, Fall**BMGT 2310 Legal Environment Of Business**

[3 credit hours]

Carefully documents treatment of the legal framework of business. Emphasis on the international aspect of business law. Topics covered include contracts, bailments, agency relationships, legal forms of ownership and negotiable instruments.

**Term Offered:** Spring, Fall**BMGT 2700 Managing Diversity In The Workplace**

[3 credit hours]

This course offers a conceptual framework for understanding diversity and its effects on organizational behavior. It will also provide action tools for effective management of diversity in organizations.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**BMGT 2750 Cultural Communications In The Workplace**

[3 credit hours]

Strategies taught to increase communication effectiveness among employees from differing cultural backgrounds. Students will also learn market-specific tips and taboos and develop strategies for negotiating across cultures.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**BMGT 2990 Independent Study**

[1-3 credit hours]

Students will study a management-related subject mutually agreed upon between the student and instructor. The format may include lecture, computer lab and/or practical experience.

**Term Offered:** Spring, Summer, Fall

## Career and Technical Education (CTE)

**CTE 4010 Teaching Occupational Skills**

[3 credit hours]

This course is required for the Health Careers, Career-Technical Education and the six Career-Technical Licenses. This course addresses multiple topics critical to workforce education as they apply to the laboratory environment. Students are provided classroom and clinical experiences designed to assist the beginning teacher with basic laboratory instructional techniques and management strategies that integrate academic, occupational and employability skills in a contextual framework.

**Term Offered:** Summer**CTE 4020 Occupational Safety & Liability**

[3 credit hours]

This course is required for the Adult Education, Career Based Intervention, and Work-Site Teacher/Coordinator endorsements. Occupational health and safety hazards applicable to school, business, and industry, will be examined. Utilizing clinical and classroom experiences students will investigate: the rationale for safety training; strategies to minimize exposure and prevent injuries; specific topics, such as ergonomics, blood borne pathogens, air quality, sound, hazardous materials, back safety, substance abuse, violence in the workplace, etc.

**Term Offered:** Summer**CTE 4030 Teaching Occupational Knowledge**

[3 credit hours]

This course is required for the Health Careers, Career-Technical Education and the six Career-Technical Licenses. Designed as a co-requisite in the professional education series, this course addresses multiple topics critical to workforce education as they apply to the classroom environment. Students are provided classroom and clinical experiences designed to assist the beginning teacher with basic classroom instructional techniques and management strategies that integrate academic, occupational and employability skills in a contextual framework.

**Term Offered:** Summer

**CTE 4050 Methods Of Teaching Career And Technical Education I**

[2 credit hours]

This course is required for the Health Careers, Career-Technical Education and the six Career- Technical Licenses. The pedagogical and management skills introduced in CTE 4010 are integrated in a contextual framework utilizing an actual laboratory situation. Learning styles; laboratory planning, instruction, technology, and management; integrated academics; performance assessment; safety and liability issues; employability and SCANS skills; community partnerships; school-based and work-site learning; etc. are the basis for student research, reflection, and inquiry

**Term Offered:** Spring, Fall**CTE 4070 Methods Of Teaching Career And Technical Education II**

[2 credit hours]

This course is required for the Health Careers, Career-Technical Education and the six Career-Technical Licenses. The pedagogical and management skills introduced in CTE 4030 are integrated in a contextual framework utilizing an actual classroom setting. Organizing curriculum; instructional planning, management, delivery and technology; learning theory; behavior management; motivation; integrated academics; authentic assessment; career-technical student organizations; etc. are the basis for student research, reflection, and inquiry.

**Term Offered:** Spring**CTE 4110 Seminar for CTE Teachers**

[3 credit hours]

The career-technical education teacher is an occupational professional who possesses the pedagogical knowledge and reflective decision making skills necessary to enter the teaching profession at multiple levels. In order to prepare individuals as career-technical instructors, components of the licensure program were developed and approved by the State Board of Education, to promote high professional standards to provide quality classroom teachers. The components are: a clear mission; operational goals; specific competencies of an assessment system.

**Term Offered:** Spring**CTE 4160 Curriculum Development & Teaching Co-Operative Education**

[3 credit hours]

This course is required for the Career Based Intervention. Designed as a study of cooperative education curriculum and instructional methods, the course includes the coordination of school-based instruction with on-the-job work-based experience. Learning styles of diverse students; instructional planning and delivery; classroom management; integrated academics; authentic assessment; safety and liability issues; employability and SCANS skills; community partnerships; school-based and work-site learning; etc. are the basis for student research, reflection, and inquiry.

**Term Offered:** Summer**CTE 4900 Curriculum Construction**

[3 credit hours]

This course is required for the Health Careers, Career-Technical Education and the six Career-Technical Licenses. A planned field experience will be completed in public school classrooms under the direction of university facilitated induction teams. The university faculty member, on-site teacher mentor, and local administrator will collaborate to assure the novice teacher maximizes his/her potential as an individual and member of an educational team. Students are provided a contextual framework to integrate theory and practice.

**Term Offered:** Fall**CTE 4930 Supervised Teaching**

[3-8 credit hours]

This course is required for the Health Careers, Career-Technical Education and the six Career-Technical Licenses. A planned field experience will be completed in public school classrooms under the direction of university facilitated induction teams. The university faculty member, on-site teacher mentor, and local administrator will collaborate to assure the novice teacher maximizes his/her potential as an individual and member of an educational team. Students are provided a contextual framework to integrate theory and practice.

**Term Offered:** Spring, Fall**CTE 4980 Problems In Career And Technical Education**

[1-5 credit hours]

A course developed around topics of interest and concern to inservice teachers. Stresses solution and resolution of educational problems occurring within selected districts.

**Term Offered:** Spring, Summer, Fall**CTE 4990 Individual Study In Career And Technical Education For Undergraduate Students**

[1-3 credit hours]

Individual study is designed to provide the opportunity to work individually on professional problems under the direction of the faculty in career and technical education.

**Term Offered:** Spring, Summer, Fall

## Chemical and Environmental Engineering (CHEE)

**CHEE 1000 Orientation And Computing For Chemical and Environmental Engineers**

[0-3 credit hours]

An introduction to the UToledo campus, campus resources, the College of Engineering, and Chemical and Environmental Engineering. Primary emphasis is on engineering computing, data analysis, and basic chemical engineering calculations.

**Term Offered:** Fall**CHEE 1010 Professional Development**

[1 credit hour]

Social protocol and ethics in industry. Resume writing and interview skills are presented in preparation for the Co-op experience. Review of resource materials for technical and non-technical individual learning. Oral and written presentation techniques are emphasized.

**Prerequisites:** CHEE 1000 with a minimum grade of D-**Term Offered:** Spring**CHEE 2010 Mass And Energy Balances**

[3 credit hours]

Introduction to the principles and techniques used in chemical engineering. Basic concepts of mathematics, physics and chemistry are applied to solving problems involving stoichiometry, material balances and energy balances.

**Prerequisites:** CHEE 1000 with a minimum grade of D- and (MATH 1850 (may be taken concurrently) with a minimum grade of D- and CHEM 1230 (may be taken concurrently) with a minimum grade of D-)**Term Offered:** Spring

**CHEE 2110 Process Fluid Mechanics**

[3 credit hours]

A comprehensive introduction to process fluid mechanics. Topics include: hydrostatics, characteristics of laminar and turbulent flow, mechanical energy balance, flow through packed beds and fluidization of solids, design of pumping systems and piping networks and metering of fluids.

**Prerequisites:** CHEE 2010 with a minimum grade of D- and MATH 1860 with a minimum grade of D-

**Term Offered:** Spring

**CHEE 2230 Chemical Engineering Thermodynamics I**

[3 credit hours]

The principles of thermodynamics and their application to chemical engineering. Topics include states and properties of matter, the first and second law of thermodynamics and thermo-chemical effects.

**Prerequisites:** CHEE 2010 with a minimum grade of D- and MATH 1850 with a minimum grade of D- and MATH 1860 (may be taken concurrently) with a minimum grade of D- and CHEM 1240 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Fall

**CHEE 2330 Chemical Engineering Thermodynamics II**

[3 credit hours]

Topics include properties of fluid mixtures, phase equilibria, chemical equilibria, power generation and refrigeration processes.

**Prerequisites:** CHEE 2230 with a minimum grade of D- and MATH 1860 with a minimum grade of D- and CHEE 2010 with a minimum grade of D- and CHEM 1240 with a minimum grade of D-

**Term Offered:** Spring, Summer

**CHEE 3030 Separation Processes**

[3 credit hours]

An introduction to equilibrium-based separation processes. Topics include distillation, extraction, leaching, drying and membrane separations. Preliminary equipment design calculations.

**Prerequisites:** CHEE 2330 with a minimum grade of D-

**Term Offered:** Spring, Fall

**CHEE 3110 Process Heat Transfer**

[3 credit hours]

Fundamental equations of heat transfer. Fourier's law. Steady and unsteady thermal conduction. Heat transfer coefficients. Condensation and boiling. Forced and natural convection. Radiation, Kirchoff's law and view factors. Design of different types of heat exchangers.

**Prerequisites:** CHEE 2110 (may be taken concurrently) with a minimum grade of D- and CHEE 2230 with a minimum grade of D-

**Corequisites:** CHEE 2110

**Term Offered:** Spring

**CHEE 3120 Mass Transfer**

[3 credit hours]

Mass transfer and its application in chemical engineering separations. Diffusivity, mass transfer coefficients and Fick's Law. Applications in continuous and stagewise processes, including absorption, extraction and distillation.

**Prerequisites:** (CHEE 2110 with a minimum grade of D- and CHEE 3030 (may be taken concurrently) with a minimum grade of D-) and MATH 2850 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Fall

**CHEE 3300 Reactor Engineering And Design**

[3 credit hours]

Fundamentals of chemical reaction engineering. Rate laws, kinetics and mechanisms of homogeneous and heterogeneous reactions. Analysis of reaction rate data. Design of industrial reactors.

**Prerequisites:** CHEE 2230 with a minimum grade of D- and CHEM 2410 with a minimum grade of D- and MATH 2850 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Fall

**CHEE 3400 Process Dynamics And Control**

[3 credit hours]

An introduction to designing control systems for chemical engineering processes. Process stability and controller design and selection.

Application of Laplace transforms, frequency response techniques and simulation software for open-loop and closed-loop analysis.

**Prerequisites:** CHEE 3300 with a minimum grade of D- and MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D- and CHEE 2110 with a minimum grade of D-

**Term Offered:** Fall

**CHEE 3940 Co-Op Work Experience**

[1 credit hour]

Approved co-op work experience. Course may be repeated.

**Prerequisites:** CHEE 1010 with a minimum grade of D- and CHEE 2010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**CHEE 3950 Co-Op Experience**

[1 credit hour]

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

**Prerequisites:** CHEE 3940 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**CHEE 4010 Green Engineering Principles**

[3 credit hours]

The principles of chemical process analysis and design are introduced for the development of the green engineering processes. Common components of chemical processes are reviewed and quantitative analyses of process performance and economics developed. The impact of design variables on material and energy usage is demonstrated.

**Prerequisites:** CHEM 1240 with a minimum grade of D-

**Term Offered:** Spring, Fall

**CHEE 4110 Green Engineering Applications**

[3 credit hours]

Applications of green engineering principles in the chemical industry are discussed. Metrics for comparing process options are introduced along with common techniques for improving process performance.

**Prerequisites:** CHEE 4010 with a minimum grade of D-

**Corequisites:** CHEE 4520

**Term Offered:** Spring, Fall

**CHEE 4120 Biofuels**

[3 credit hours]

The technical, economic, social, and political issues associated with energy consumption are discussed. The potential for biofuels to replace current energy sources is examined based on the historical evolution of the industry and current research activity

**Prerequisites:** CHEM 1230 with a minimum grade of D-

**Term Offered:** Spring

**CHEE 4410 Bioseparations**

[3 credit hours]

Introduction to, analysis and industrial design of processes required to separate and purify proteins and other biological compounds for the downstream processing of bioreactor products. The separations techniques will include filtration, chromatography and crystallization.

**Prerequisites:** BIOE 3400 with a minimum grade of D- or CHEE 3120 with a minimum grade of D-

**Term Offered:** Fall

**CHEE 4500 Chemical Engineering Laboratory I**

[3 credit hours]

An experimental study of the design and performance of selected chemical engineering processes and equipment. Analysis of data, design of experiments and laboratory reports are emphasized.

**Prerequisites:** (CHEE 2110 with a minimum grade of D- and CHEE 3030 with a minimum grade of D- and CHEE 3110 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**CHEE 4520 Chemical Process Economics And Design**

[3 credit hours]

Chemical equipment and process design. Introduction to simulation and flow-sheeting techniques and software. Topics include plant safety and pollution prevention, market analysis, cost estimating, decision making and cash flow analysis.

**Prerequisites:** CHEE 2110 with a minimum grade of D- and CHEE 2330 with a minimum grade of D- and CHEE 3030 with a minimum grade of D- and CHEE 3110 with a minimum grade of D- and CHEE 3940 with a minimum grade of PS

**Term Offered:** Spring, Summer

**CHEE 4540 Chemical Process Simulation And Design**

[3 credit hours]

Application of chemical engineering fundamentals and the use of process simulators in the synthesis of chemical processes. Use of cost factors and environmental considerations in process decisions. The solution of a comprehensive case study and the preparation of a formal report are required.

**Prerequisites:** CHEE 3120 with a minimum grade of D- and CHEE 4520 with a minimum grade of D- and CHEE 3300 with a minimum grade of D-

**Term Offered:** Fall

**CHEE 4550 Chemical Engineering Laboratory II**

[3 credit hours]

An experimental study of the design and performance of selected chemical engineering process equipment, focusing on heat and mass transfer and process control. Design of experiments, analysis of data, and presentation techniques are emphasized.

**Prerequisites:** (CHEE 3300 (may be taken concurrently) with a minimum grade of D- and CHEE 3120 (may be taken concurrently) with a minimum grade of D- and CHEE 3400 (may be taken concurrently) with a minimum grade of D-) and CHEE 4500 with a minimum grade of D-

**Term Offered:** Fall

**CHEE 4800 Polymer Science And Engineering**

[3 credit hours]

Polymerization processes, characterization, structure and properties of polymers, processing and engineering applications of the major polymer types.

**Term Offered:** Fall

**CHEE 4960 Senior Honors Thesis**

[3 credit hours]

Independent research under the guidance of a faculty member, requiring an oral report and a written thesis upon completion of work.

**Term Offered:** Spring, Summer, Fall

**CHEE 4980 Special Topics In Chemical Engineering**

[1-4 credit hours]

Special topics of interest to chemical engineers - upper division.

**Term Offered:** Spring, Summer, Fall

**CHEE 4990 Independent Studies In Chemical Engineering**

[1-4 credit hours]

Independent studies in chemical engineering - upper division.

**Term Offered:** Spring, Summer, Fall

## Chemistry (CHEM)

**CHEM 1090 Elementary Chemistry**

[3 credit hours]

For students who major in science, engineering or other fields which require chemistry as a prerequisite subject who have not had a previous course in chemistry and whose preparation is not sufficient to begin General Chemistry (CHEM 1230).

**Prerequisites:** MATH 1200 with a minimum grade of C or MATH 1320 with a minimum grade of C or MATH 1340 with a minimum grade of C or MATH 1750 with a minimum grade of C or MATH 1830 with a minimum grade of C or MATH 1850 with a minimum grade of C or ACT Math with a score of 20 or Aleks Math Placement Test with a score of 046 or Math - Coll Algebra Placement with a score of 10 or SAT Mathematics with a score of 480 or MATH SECTION SCORE with a score of 510

**Term Offered:** Spring, Summer, Fall

**CHEM 1100 Chemistry And Society**

[3 credit hours]

An introduction to basic chemistry and a survey of the impact that chemistry has on society. Topics include: power, energy, and fuels; water and pollution; soaps and detergents; nutrition; poisons and toxins; plastics and polymers; drugs.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**CHEM 1110 Elementary Chemistry for the Health Sciences**

[3 credit hours]

The study of chemistry for students that are studying nursing or other allied health related fields who have not had a previous course in chemistry or whose preparation in chemistry is not sufficient to begin Chemistry for the Health Sciences (CHEM 1120).

**Prerequisites:** ACT Math with a score of 20 or MATH SECTION SCORE with a score of 520 or Aleks Math Placement Test with a score of 046 or Math - Coll Algebra Placement with a score of 10 or MATH 1200 with a minimum grade of C or MATH 1320 with a minimum grade of C or MATH 1340 with a minimum grade of C or MATH 1750 with a minimum grade of C or MATH 1830 with a minimum grade of C or MATH 1850 with a minimum grade of C

**Term Offered:** Spring, Fall

**CHEM 1120 Chemistry For Health Sciences**

[4 credit hours]

The study of chemistry for students majoring in nursing and other health-related fields. This course includes general, organic and biochemical topics in condensed form. The impact of chemistry in health fields will be emphasized.

**Prerequisites:** CHEM 1110 with a minimum grade of C or Aleks Health Science Placement with a score of 39 or Aleks Health Science Retest with a score of 39

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**CHEM 1150 Chemistry And Society Laboratory**

[1 credit hour]

Laboratory introduction to the concepts of chemistry to accompany Chemistry 1100. Demonstrations by laboratory experiments of lessons developed in the accompanying lecture course. Two hours of laboratory per week.

**Term Offered:** Spring, Fall

Core Natural Sciences, OT36 Natural Science

**CHEM 1200 Problem Solving In General Chemistry**

[1 credit hour]

Problem solving and skill development for students enrolled in CHEM 1230 who obtained a satisfactory score on the chemistry placement test but need additional assistance in selected topics. May be taken only as P/NC. Pre-requisites: CHEM 1090 with a minimum grade of C or better OR pass placement exam.

**Prerequisites:** CHEM 1090 with a minimum grade of C or Aleks Chem Placement Highest with a score of 50 or Chemistry Placement with a score of 17

**Term Offered:** Spring, Fall

**CHEM 1230 General Chemistry I**

[4 credit hours]

An introduction to atomic structure, chemical bonding, kinetic-molecular theory, energy relationships and structural concepts. This sequence is for students who major in science, engineering or other fields which require chemistry as a prerequisite subject. Three hours lecture and one hour discussion per week.

**Prerequisites:** CHEM 1090 with a minimum grade of C or Chemistry Placement with a score of 17 or Aleks Chem Placement Highest with a score of 50

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**CHEM 1240 General Chemistry II**

[4 credit hours]

An introduction to solutions, equilibrium, acid-base theory, energy relationships and structural concepts. This sequence is for students who major in science, engineering or other fields which require chemistry as a prerequisite subject. Three hours lecture and one hour discussion per week.

**Prerequisites:** CHEM 1230 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**CHEM 1280 General Chemistry Lab I**

[1 credit hour]

Experiments over topics covered in CHEM 1230 lectures. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting. Three hours of laboratory per week.

**Prerequisites:** CHEM 1230 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**CHEM 1290 General Chemistry Lab II**

[1 credit hour]

Experiments over topics covered in CHEM 1240 lectures. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting. Three hours of laboratory per week.

**Prerequisites:** CHEM 1240 (may be taken concurrently) with a minimum grade of C and CHEM 1280 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**CHEM 1300 Principles of General Chemistry**

[2 credit hours]

This is an accelerated course with selected topics from general chemistry including matter, units, ionic compounds, molecular compounds, aqueous solutions, precipitation reactions, acid-base reactions, oxidation-reduction reactions, concentration, enthalpy, calorimetry, polarity, Lewis structures, dipole moment, and intermolecular forces. This course is for students who major in science, engineering or other fields which require CHEM1240. Students who earned a C-/D+/D-/D- in CHEM1230 may take this course in place of the prerequisite grade of C in CHEM1230 such that they are eligible to advance to CHEM1240 without having to retake CHEM1230. Students can also take this course to improve preparation and performance in CHEM1240. This is a DL course with a 2 hour meeting on campus for a final exam.

**Prerequisites:** CHEM 1230 with a minimum grade of D-

**CHEM 1910 Survey Of Research**

[1 credit hour]

Survey of current research areas at the frontiers of chemistry, including topics that cross the boundaries with other disciplines. May be taken only as P/NC.

**Term Offered:** Spring

**CHEM 2410 Organic Chemistry I**

[3 credit hours]

Study of structure and reactions of organic compounds. Three hours lecture per week.

**Prerequisites:** CHEM 1240 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**CHEM 2420 Organic Chemistry II**

[3 credit hours]

Study of structure and reactions of organic compounds. Three hours lecture per week.

**Prerequisites:** CHEM 2410 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**CHEM 2430 Recitation For Organic Chemistry I**

[1 credit hour]

Optional recitation sections that discuss concepts and solve practice questions in CHEM2410.

**Prerequisites:** CHEM 1240 with a minimum grade of C-

**Term Offered:** Spring, Fall

**CHEM 2440 Recitation For Organic Chemistry II**

[1 credit hour]

Optional recitation sections that discuss concepts and solve practice questions in CHEM2420.

**Prerequisites:** CHEM 2410 with a minimum grade of C-

**Term Offered:** Spring, Fall

**CHEM 2460 Organic Chemistry Laboratory I for Non-Majors**

[1 credit hour]

Practice of organic laboratory techniques. Four hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting. This course is for students in majors other than chemistry or biochemistry. Chemistry (BS, BA) or biochemistry majors (BS) should take CHEM 2480.

**Prerequisites:** (CHEM 1240 with a minimum grade of C- and CHEM 1290 with a minimum grade of C-) and CHEM 2410 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**CHEM 2470 Organic Chemistry Laboratory II for Non-Majors**

[1 credit hour]

Practice of organic laboratory techniques. Four hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting. This course is for students in majors other than chemistry or biochemistry. Chemistry (BS, BA) or biochemistry majors (BS) should take CHEM 2490.

**Prerequisites:** CHEM 2460 with a minimum grade of C- and CHEM 2420 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**CHEM 2480 Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis**

[0-2 credit hours]

For Chemistry/Biochemistry majors. Introduction to theory and laboratory practice in modern methods of physical separation techniques, and introduction to organic synthetic methods. Special emphasis is made on spectroscopic techniques used in the organic laboratory. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** CHEM 1240 with a minimum grade of C- and CHEM 1290 with a minimum grade of C- and CHEM 2410 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Fall

**CHEM 2490 Organic Chemistry Laboratory II for Majors: Synthesis and Identification**

[2 credit hours]

For Chemistry/Biochemistry majors. Application of synthetic methods to elementary organic synthesis with special emphasis on instrumental approaches to problem solving in organic chemistry. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** (CHEM 2410 with a minimum grade of C- and CHEM 2480 with a minimum grade of C-) and CHEM 2420 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring

**CHEM 2500 Instrumental Methods For Organic Chemistry**

[0-2 credit hours]

A bridge course for students wishing to major in chemistry or biochemistry at the B.S. level after taking the organic non-major lab sequence. Introduction to major instrumental methods employed in the organic laboratory. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** (CHEM 2420 with a minimum grade of C- and CHEM 2470 with a minimum grade of C-)

**Term Offered:** Spring, Summer, Fall

**CHEM 2910 Undergraduate Research I**

[1-3 credit hours]

An introduction to research under the guidance of a faculty member. May be repeated. A maximum accumulated credit of 4 hours in 2910 and total of 10 hours in 2910, 3910, 4910 may be applied toward a degree. May be taken only as P/NC.

**Prerequisites:** CHEM 1240 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**CHEM 2920 Readings In Chemistry**

[1-2 credit hours]

Readings from the literature of chemistry. May be taken only as P/NC.

**Term Offered:** Spring, Summer, Fall



**CHEM 3100 Fundamentals of Scientific Glassblowing**

[1 credit hour]

An introduction to flame working techniques for the manipulation of glass for chemistry and biochemistry majors. Hands-on techniques for developing skills for artistic and scientific glass design, creation and repair. May be taken only as P/NC.

**Prerequisites:** CHEM 2480 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring, Fall

**CHEM 3310 Analytical Chemistry**

[2 credit hours]

Theory and applications of chemical equilibria to gravimetric, volumetric and separation techniques. Emphasis on the quantitative aspects of analytical chemistry. Two hours lecture per week.

**Prerequisites:** CHEM 1240 with a minimum grade of C-

**Term Offered:** Fall

**CHEM 3360 Analytical Chemistry Laboratory**

[2 credit hours]

Practice of quantitative analytical methods of analysis. Six hours laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** (CHEM 3310 with a minimum grade of C- and CHEM 1290 with a minimum grade of C-)

**Term Offered:** Spring

**CHEM 3510 Biochemistry I**

[3 credit hours]

The chemistry of living systems, beginning with the structures and molecular and biological functions of proteins, nucleic acids, carbohydrates and lipids. Other topics include enzyme kinetics and mechanism, biological membranes and membrane transport, and signal transduction.

**Prerequisites:** CHEM 2420 with a minimum grade of C-

**Term Offered:** Summer, Fall

**CHEM 3520 Biochemistry II**

[3 credit hours]

Continuing study of the chemistry of living systems. Topics include the metabolism of carbohydrates, lipids and amino acids, energy transductions and photosynthesis, mechanisms and regulation of nucleic acid and protein synthesis.

**Prerequisites:** CHEM 3510 with a minimum grade of C-

**Term Offered:** Spring

**CHEM 3560 Biochemistry Laboratory**

[2 credit hours]

Practice of biochemistry laboratory techniques. Six hours of laboratory per week.

**Prerequisites:** CHEM 3510 with a minimum grade of C-

**Term Offered:** Spring

**CHEM 3610 Inorganic Chemistry I**

[3 credit hours]

The application of modern theories to the elements and their inorganic compounds. Physical chemical principles are used throughout.

**Prerequisites:** CHEM 2420 with a minimum grade of C- or CHEE 2230 with a minimum grade of C- and CHEE 2330 with a minimum grade of C-

**Term Offered:** Spring

**CHEM 3710 Physical Chemistry For The Biosciences I**

[3 credit hours]

Physical and mathematical laws applied to chemistry with examples from biologically important processes. No credit given if Chemistry 3730-3740 are taken.

**Prerequisites:** (MATH 1860 with a minimum grade of D- and PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of D- and PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D-) or (MATH 1860 with a minimum grade of D- and PHYS 2130 with a minimum grade of D-) or (MATH 1860 with a minimum grade of D- and PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-)

**Corequisites:** CHEM 3712

**Term Offered:** Fall

**CHEM 3712 Recitation for Chem 3710**

[1 credit hour]

Recitation section that discusses concepts and solves practice questions for CHEM 3710. Must be taken simultaneously with CHEM 3710. Not for major/minor credit.

**Prerequisites:** CHEM 2420 with a minimum grade of D- and CHEM 3710 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Fall

**CHEM 3720 Physical Chemistry For The Biosciences II**

[3 credit hours]

Physical and mathematical laws applied to chemistry with examples from biologically important processes. No credit given if Chemistry 3730-3740 are taken.

**Prerequisites:** CHEM 3710 with a minimum grade of D-

**Corequisites:** CHEM 3722

**Term Offered:** Spring

**CHEM 3722 Recitation For Chem 3720**

[1 credit hour]

Optional recitation section that discusses concepts and solves practice questions for CHEM 3720. Must be taken simultaneously with CHEM 3720. Not for major/minor credit.

**Prerequisites:** CHEM 3710 with a minimum grade of C- and CHEM 3720 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring

**CHEM 3730 Physical Chemistry I**

[3 credit hours]

Fundamental theories and basic laws of chemistry with emphasis on their mathematical development. Thermodynamics, equilibrium, electrochemistry, classical chemical kinetics.

**Prerequisites:** CHEM 1240 with a minimum grade of C- and PHYS 2140 with a minimum grade of C- and PHYS 2145 with a minimum grade of C- and (MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-)

**Term Offered:** Fall

**CHEM 3732 Recitation for Chem 3730**

[1 credit hour]

Optional recitation section that discusses concepts and solves practice questions for CHEM 3730. Must be taken simultaneously with CHEM 3730, Physical Chemistry I. Not for major/minor credit.

**Prerequisites:** CHEM 2420 with a minimum grade of C- and CHEM 3730 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Fall

**CHEM 3740 Physical Chemistry II**

[3 credit hours]

Fundamental theories and basic laws of chemistry with emphasis on their mathematical development. Structure of matter, statistical and quantum mechanics, reaction dynamics, spectroscopy.

**Prerequisites:** CHEM 3730 with a minimum grade of C- or CHEE 2230 with a minimum grade of C- and CHEE 2330 with a minimum grade of C-

**Term Offered:** Spring

**CHEM 3742 Recitation For Chem 3740**

[1 credit hour]

Optional recitation section that discusses concepts and solves practice questions for CHEM 3740. Must be taken simultaneously with CHEM 3740, Physical Chemistry II. Not for major/minor credit.

**Prerequisites:** CHEM 3730 with a minimum grade of C- and CHEM 3740 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring

**CHEM 3810 Chemistry of Sustainable Energy Resources**

[3 credit hours]

Application of the principles of chemistry to understand the issues related to implementing and optimizing a sustainable supply of energy.

**Prerequisites:** CHEM 1240 with a minimum grade of C- and CHEM 1290 with a minimum grade of C- and PHYS 3400 with a minimum grade of C-

**Term Offered:** Spring, Fall

**CHEM 3860 Advanced Laboratory I**

[0-2 credit hours]

Laboratory experiments and techniques relating to subjects developed in CHEM 3710, 3730, or 4570. Three-hour laboratory and one-hour discussion per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** (CHEM 2420 with a minimum grade of C- and CHEM 2470 with a minimum grade of C-) or CHEM 2490 with a minimum grade of C- and (CHEM 3710 (may be taken concurrently) with a minimum grade of C- or CHEM 3730 (may be taken concurrently) with a minimum grade of C- or CHEM 4570 (may be taken concurrently) with a minimum grade of C-)

**Term Offered:** Fall

**CHEM 3870 Advanced Laboratory II**

[2 credit hours]

Laboratory experiments and techniques relating to subjects developed in 3710/3720, 3730/3740. Six hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** CHEM 3860 with a minimum grade of C- and (CHEM 3740 (may be taken concurrently) with a minimum grade of C- or CHEM 3720 (may be taken concurrently) with a minimum grade of C-)

**Term Offered:** Spring

**CHEM 3910 Undergraduate Research II**

[1-3 credit hours]

Research under the guidance of a faculty member. A written report is required. May be repeated. A maximum accumulated credit of 10 hours in CHEM 2910, 3910 and 4910 may be applied toward a degree. May be taken only as P/NC.

**Prerequisites:** CHEM 2420 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**CHEM 3920 Readings In Chemistry II**

[1-2 credit hours]

Readings from the literature of chemistry. May be taken only as P/NC.

**Term Offered:** Spring, Summer, Fall

**CHEM 4200 Green Chemistry**

[3 credit hours]

Introduction to the principles and applications of green chemistry, including industrial applications, atom economy, safer solvent substitutions, chemical alternatives assessment, green chemistry metrics, basic life cycle assessment, and an introduction to chemical toxicology. Students need CHEM 2420 or permission of instructor.

**Prerequisites:** CHEM 2420 with a minimum grade of D-

**CHEM 4210 Environmental Chemistry**

[3 credit hours]

This course will focus on the chemistry of air, water, and soil with specific emphasis on the effects of human made chemical products and byproducts on the environment. Connections with green chemistry will be highlighted. Students need CHEM 2420 or permission of instructor.

**Prerequisites:** CHEM 2420 with a minimum grade of D-

**CHEM 4300 Instrumental Analysis**

[2 credit hours]

An introduction to modern chemical instrumentation and applications to chemical analysis. Topics include electrical, magnetic, nuclear and spectroscopic instrumentation.

**Prerequisites:** (CHEM 3310 with a minimum grade of C- and CHEM 3360 with a minimum grade of C-) and CHEM 3710 (may be taken concurrently) with a minimum grade of C- or CHEM 3730 (may be taken concurrently) with a minimum grade of C- or CHEM 4570 (may be taken concurrently) with a minimum grade of C- or CHEE 2230 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Fall

**CHEM 4305 Advanced Analytical Chemistry**

[4 credit hours]

An overview of new techniques in analytical chemistry. Topics include sample preparation and sampling, spectroscopic, separation, electrochemical, surface characterization and thermal methods.

**Prerequisites:** CHEM 3310 with a minimum grade of C

**Term Offered:** Fall

**CHEM 4310 Separation Methods**

[3 credit hours]

The theory, design and application of separation methods. Topics include extraction techniques, gas, liquid, and supercritical fluid chromatography, affinity and chiral separation, and capillary electrophoresis.

**Prerequisites:** CHEM 3310 with a minimum grade of C or CHEM 4300 with a minimum grade of C

**Term Offered:** Spring

**CHEM 4320 Electrochemistry**

[4 credit hours]

A fundamental study of electrochemical concepts, methods, instrumentation and applications.

**Prerequisites:** CHEM 4300 with a minimum grade of C

**Term Offered:** Spring

**CHEM 4330 Spectroscopic Methods**

[4 credit hours]

A comprehensive study of theory and instrumentation. Applications of spectroscopic methods including spectral interpretation. Topics include a study of absorption, emission, Raman, NMR, ESR, mass spectrometry, and related subjects. Important methodology and strategy in organic synthesis including disconnection and retrosynthetic analysis.

**Prerequisites:** CHEM 2410 with a minimum grade of C**Term Offered:** Spring**CHEM 4340 Mass Spectrometry**

[4 credit hours]

The principles and applications of mass spectrometry in chemistry, biochemistry, and related disciplines.

**Prerequisites:** CHEM 4300 with a minimum grade of D-**Term Offered:** Spring**CHEM 4350 Separation Methods Laboratory**

[1 credit hour]

Experiments covering topics discussed in CHEM 4310 lectures. Five hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard 287.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** (CHEM 3310 with a minimum grade of C and CHEM 3360 with a minimum grade of C) or (CHEM 4300 with a minimum grade of C and CHEM 4880 with a minimum grade of C)**Corequisites:** CHEM 4310**Term Offered:** Spring**CHEM 4400 Advanced Organic Chemistry**

[4 credit hours]

This course deals with chemical structure and reactivity correlations applied to the study of organic reaction mechanisms; stereochemical features including conformation and stereoelectronic effects; reaction dynamics, isotope effects and molecular orbital theory applied to pericyclic and photochemical reactions; and special reactive intermediates including carbenes, carbanions, and free radicals.

**Prerequisites:** CHEM 2420 with a minimum grade of B**Term Offered:** Fall**CHEM 4410 Organic Synthesis**

[4 credit hours]

Important methodology and strategy in organic synthesis including disconnection and retrosynthetic analysis.

**Term Offered:** Spring**CHEM 4430 Medicinal Chemistry**

[4 credit hours]

Qualitative and quantitative aspects of the design of new therapeutic agents are discussed. Approaches to the design of drugs and new therapeutic modalities directed at enzymes, receptors, membrane transport proteins and nucleic acids will be examined.

**Term Offered:** Fall**CHEM 4500 Advanced Biological Chemistry**

[4 credit hours]

The chemistry of cellular and molecular transformations in biochemical systems. Molecular structure of proteins, nucleic acids and membranes. Metabolism and biosynthesis of carbohydrates, amino acids and lipids; gene regulation and replication.

**Prerequisites:** CHEM 3520 with a minimum grade of C-**Term Offered:** Fall**CHEM 4510 Protein Chemistry**

[4 credit hours]

A detailed analysis of the structure and function of proteins. Current methodology for the analysis of structure, the basis for molecular associations and relationships between structure and biological function.

**Prerequisites:** CHEM 3510 with a minimum grade of C-**Term Offered:** Spring**CHEM 4520 Enzymology**

[4 credit hours]

Survey of current methods to study enzyme-catalyzed reactions, and application to examples from major enzyme groups. Current topics in enzymology include abzymes and ribozymes, artificial enzymes, and enzymes, and enzyme engineering.

**Prerequisites:** CHEM 3510 with a minimum grade of C-**Term Offered:** Spring**CHEM 4560 Biophysical Chemistry Laboratory - WAC**

[2 credit hours]

Data Analysis of modern biophysical measurements related to the topics discussed in CHEM 4570 (Biophysical Chemistry), an introduction to scientific writing, and the preparation of scientific manuscripts. Six hours of laboratory per week.

**Prerequisites:** CHEM 3520 with a minimum grade of C-**CHEM 4570 Biophysical Chemistry**

[4 credit hours]

Principles and applications of physical chemistry as applied to biological macromolecules (i.e., proteins and nucleic acids in solution), including thermodynamics, kinetics and spectroscopy of macromolecular interactions.

**Prerequisites:** (PHYS 2080 with a minimum grade of C- and PHYS 2085 with a minimum grade of C- or PHYS 2140 with a minimum grade of C- and PHYS 2145 with a minimum grade of C-) and CHEM 3520 with a minimum grade of C-**Term Offered:** Fall**CHEM 4580 Bioinorganic Chemistry**

[4 credit hours]

Survey of biologically important metals and metal-ligand complexes, and the role of metal ions in proteins, metal ion transport and regulation, and metals in medicine.

**Prerequisites:** CHEM 3520 with a minimum grade of C-**CHEM 4600 Physical Inorganic Chemistry**

[4 credit hours]

Symmetry, bonding theories, magnetism, and spectroscopic characterization of inorganic compounds are described. Coverage of spectroscopic techniques such as NMR, EPR, UV/VIS, IR, AND Mossbauer focus on applications to inorganic systems.

**Prerequisites:** CHEM 3610 with a minimum grade of C**Term Offered:** Fall**CHEM 4610 Chemistry of the Transition and Post-Transition Elements**

[4 credit hours]

The organometallic chemistry of the transition metals, lanthanides and actinides is described. Synthesis, structure, bonding, and reactivity are considered. Applications in catalysis, bioinorganic, and materials chemistry are discussed.

**Prerequisites:** CHEM 3610 with a minimum grade of C**Term Offered:** Fall

**CHEM 4625 Chemistry of Main Group Elements**

[4 credit hours]

The inorganic and organometallic chemistry of main group elements is described. Synthesis, structure, bonding, and reactivity are considered. The use of main group reagents in synthesis, catalysis, and materials chemistry are discussed.

**Prerequisites:** CHEM 3610 with a minimum grade of C**Term Offered:** Spring**CHEM 4710 Quantum Chemistry and Spectroscopy**

[4 credit hours]

Fundamental principles of quantum mechanics and their application to model systems, atoms and molecules; Introduction to molecular spectroscopy.

**Term Offered:** Spring**CHEM 4720 Modern Topics in Physical Chemistry**

[4 credit hours]

Advanced topics of current interest in physical chemistry. Examples of topics include nanomaterials science, spectroscopic techniques, or molecular modeling.

**Prerequisites:** CHEM 3740 with a minimum grade of C- or CHEM 3730 with a minimum grade of C-**Term Offered:** Spring**CHEM 4800 Advanced Materials Chemistry**

[4 credit hours]

Introduction to important classes of solids, including conductors, magnetic materials, ferroelectrics, glasses, microporous materials, organic solids. Traditional and novel synthetic approaches, structure/property relationships, and characterization methods specific to solids.

**Prerequisites:** CHEM 3740 with a minimum grade of C**Term Offered:** Spring**CHEM 4810 Materials Science I**

[4 credit hours]

A generic materials science approach to the study of crystalline structure and defects (point, line and planar) in crystalline materials. The mechanisms and kinetics of diffusion in the condensed state.

**Term Offered:** Fall**CHEM 4820 Materials Science II**

[4 credit hours]

A materials science approach to the thermodynamics of condensed state equilibria. Phase transformation kinetics.

**Term Offered:** Spring**CHEM 4830 Nanomaterials Science**

[4 credit hours]

This course is intended to serve as an introduction to nanomaterials science for non-specialists. It is accessible to upper division students in any technical major, including chemists, physicists, and engineers. The fundamentals of nanomaterials science and nanotechnology will be covered, including the origin of nanoscale properties, synthesis and characterization of nanomaterials (e.g. colloids, nanoparticles, nanowires, nanotubes, DNA-based structures), fabrication of larger-scale structures (e.g. self assembly, lithography), and characterization techniques (e.g. microscopy, microanalysis, spectroscopy). Applications will also be discussed.

**Prerequisites:** CHEM 1240 with a minimum grade of C- and (MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-) and PHYS 2140 with a minimum grade of C-**Term Offered:** Spring, Fall**CHEM 4850 X-Ray Crystallography**

[4 credit hours]

Theory and practice of structure determination by X-ray diffraction. Basics of symmetry, diffraction, and reciprocal space. Hands-on introduction to single-crystal and powder methods.

**Prerequisites:** MATH 1840 with a minimum grade of C or MATH 1860 with a minimum grade of C**Term Offered:** Fall**CHEM 4880 Advanced Laboratory III**

[2 credit hours]

Laboratory experiments and techniques relating to subjects developed in CHEM 4300. Six hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

**Prerequisites:** (CHEM 3860 (may be taken concurrently) with a minimum grade of C- or CHEM 4560 (may be taken concurrently) with a minimum grade of C-) or CHEM 3360 with a minimum grade of C- and CHEM 4300 (may be taken concurrently) with a minimum grade of C-**Term Offered:** Fall**CHEM 4910 Undergraduate Research III**

[1-3 credit hours]

Thesis level research under the guidance of a faculty member. May be repeated. A minimum of three hours and an acceptable thesis required for credit toward the B.S. major. A maximum accumulated credit of 10 hours in CHEM 2910, 3910 and 4910 may be applied toward a degree. A written report is required. May be taken only as P/NC. Prerequisite: GPA (overall and in chemistry courses) above 2.5 and permission of department  
Corequisite: CHEM 3740 or 4570

**Prerequisites:** CHEM 3740 (may be taken concurrently) with a minimum grade of C- or CHEM 4570 (may be taken concurrently) with a minimum grade of C-**Term Offered:** Spring, Summer, Fall**CHEM 4920 Readings In Chemistry III**

[1-2 credit hours]

Readings from the literature of chemistry. May be taken only as P/NC.

**Term Offered:** Spring, Summer, Fall

**CHEM 4980 Special Topics In Chemistry**

[2-4 credit hours]

An advanced course for chemistry majors in an important area of chemistry. Consult the undergraduate adviser for details. Course may be repeated for credit under different specialty numbers (topics).

**Prerequisites:** (CHEM 2420 with a minimum grade of C- and CHEM 3740 with a minimum grade of C-)

**Term Offered:** Spring, Fall

## Chinese (CHIN)

**CHIN 1090 Chinese Culture**

[3 credit hours]

Through a systematic study of Chinese values and patterns of behaviors, this course builds students' proficiency in cultural competence of Chinese. This course is taught in English.

**Term Offered:** Spring, Fall

Core Arts & Humanities, Multicultural Non-US Diversity

**CHIN 1110 Elementary Chinese I**

[4 credit hours]

An introduction to Chinese language and culture through listening, speaking, reading and writing. Laboratory practice required.

**Term Offered:** Fall

**CHIN 1120 Elementary Chinese II**

[4 credit hours]

An introduction to Chinese language and culture through listening, speaking, reading and writing. Laboratory practice required. Prerequisite: CHIN 1110 or satisfactory score on placement test.

**Prerequisites:** CHIN 1110 with a minimum grade of D-

**Term Offered:** Spring, Fall

Core Arts & Humanities

**CHIN 2140 Intermediate Chinese I**

[3 credit hours]

**CHIN 2150 Intermediate Chinese II**

[3 credit hours]

**CHIN 3980 Special topics in Chinese**

[0-6 credit hours]

Study of a selected topic in Chinese language, literature or culture. May be repeated when topic varies.

## Civil Engineering (CIVE)

**CIVE 1000 Freshman Civil Engineering Experience**

[0-1 credit hours]

Computer literacy, report writing, word processing, table creation, equation, equation writing, data manipulation, data graphical plotting. Introduction to various disciplines in Civil Engineering, Structural, Geotechnical, Transportation, Environmental. Practice in engineering problem solving process.

**Term Offered:** Fall

**CIVE 1100 Civil Engineering Measurements**

[3 credit hours]

Study of graphical representations of engineering structures and systems and application by hand drawing and computer aided techniques. Instruments and methods for linear and angular measurements. Error theory and propagation. Familiarization with geographical information systems.

**Corequisites:** CIVE 1110

**Term Offered:** Spring, Fall

**CIVE 1110 Computer Aided Drafting for Civil Engineers**

[1 credit hour]

Study of graphical representation of engineering structures and systems and application by hand-drawing and computer aided techniques.

**Corequisites:** CIVE 1100

**Term Offered:** Spring, Fall

**CIVE 1150 Engineering Mechanics: Statics**

[3 credit hours]

Study of coplanar statics of particles, vector addition, resultant components, equilibrium, free body diagrams, equivalent force systems, vector products, scalar products, 2 & 3 dimensional equilibrium of rigid bodies, analysis of machines, pulleys, trusses. Centroids, moments of inertia, shear and bending moment diagrams.

**Prerequisites:** (MATH 1850 with a minimum grade of D- and PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-) or (MATH 1920 with a minimum grade of D- and PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

**CIVE 1160 Engineering Mechanics: Strength Of Materials**

[3 credit hours]

Material properties. Axially loaded members, including eccentric loads and thin wall pressure vessels. Axial load applications: Stress-Strain relationships, Stress & Strain transformations. Torsion: solid sections, circular sections. Torsional load applications: Combined axial and torsion stress. Beams: shear and bending moment diagrams, bending stress, deflection. Beam load applications: Combined shear, torsion and bending stress. Buckling of long columns.

**Prerequisites:** CIVE 1150 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**CIVE 1170 Fluid Mechanics For Civil Engineers**

[0-3 credit hours]

Fundamental concepts of fluid mechanics. Use of hydrostatics, continuity, momentum and energy equations to solve fluid problems applied to pipe flow, open channel flow and boundary layer flow.

Introduction to turbo machinery.

**Prerequisites:** PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-

**Term Offered:** Spring

**CIVE 2000 Professional Development**

[1 credit hour]

Basic concepts of career planning, co-op performance expectations, necessary skills for maximizing learning from experiences and realities of the professional community.

**Prerequisites:** CIVE 1000 with a minimum grade of D- or CHEE 1000 with a minimum grade of D-

**Term Offered:** Spring

**CIVE 2110 Civil Engineering Materials With Laboratory**

[3 credit hours]

Introduction to properties of aggregates, Portland cement, concrete, steel, glass and bituminous mixtures. Mix designs of cement and asphalt concrete and standard test procedures for strength, workability, serviceability and durability.

**Prerequisites:** CIVE 1160 with a minimum grade of D-**Term Offered:** Spring, Fall**CIVE 2550 Sustainability Problem Solving**

[3 credit hours]

Teams of students work as part of an enterprise to address real-world engineering design projects or problems. Develops group problem-solving skills. Stresses interpersonal, project management, and action planning skills. Frames the problem from a systems and sustainability perspective including the technical, social, economic, and environmental dimensions and solutions of the problem.

**Term Offered:** Spring, Summer, Fall**CIVE 3120 Civil Engineering Systems Analysis**

[3 credit hours]

Systems Approach, optimization by differential calculus techniques, linear programming, environmental, transportation and assignment problems, management of construction projects, critical path method, PERT and decision analysis.

**Prerequisites:** MATH 2850 (may be taken concurrently) with a minimum grade of D-**Term Offered:** Spring, Fall**CIVE 3210 Soil Mechanics**

[0-3 credit hours]

A study of soil as an engineering material. Geologic origins, physical properties, movement of water through soil, soil stresses, consolidation, shear strength. Engineering properties testing of soils in laboratory.

**Prerequisites:** (CIVE 1160 with a minimum grade of D- and CIVE 1170 with a minimum grade of D-)**Term Offered:** Spring, Fall**CIVE 3220 Foundation Engineering**

[3 credit hours]

Application of soil mechanics principles to design for problems encountered in excavations, embankments, foundations, retaining structures, abutments, slope stability. Evaluation of the ability of soil to function in various capacities.

**Prerequisites:** CIVE 3210 with a minimum grade of D-**Term Offered:** Summer**CIVE 3310 Structural Analysis**

[3 credit hours]

Analysis of statically determinate structures; analysis of simple and compound trusses, beams and frames; introduction to indeterminate structures; slope deflection and moment distribution. Introduction to computer applications.

**Prerequisites:** (CIVE 1160 with a minimum grade of D- and MATH 1890 with a minimum grade of D- or MATH 2890 with a minimum grade of D-)**Term Offered:** Spring, Fall**CIVE 3410 Steel Design I**

[3 credit hours]

An introduction to the principles underlying design of axial tension members, axial compression members, beams, columns and base plates. Also includes welded and bolted connections.

**Prerequisites:** CIVE 3310 with a minimum grade of D- and CIVE 2110 with a minimum grade of D-**Term Offered:** Summer**CIVE 3420 Reinforced Concrete Design I**

[3 credit hours]

Introduction to principles and underlying design of basic structural beams, columns, one-way slabs in reinforced concrete. Shear reinforcement.

**Prerequisites:** CIVE 3310 with a minimum grade of D-**Term Offered:** Spring, Fall**CIVE 3510 Transportation Engineering I**

[3 credit hours]

To provide an overview of transportation systems and operating characteristics of various highway modes. Concept of land use/transportation interaction. Considerations of vehicle and human characteristics in design of highway elements. Introduction to highway capacity and traffic control devices. Transportation planning process leading to local area traffic management with introduction to transportation system management and intelligent transportation systems.

**Prerequisites:** (CIVE 1100 with a minimum grade of D- and MIME 2300 with a minimum grade of D-)**Term Offered:** Fall**CIVE 3520 Transportation Engineering II**

[3 credit hours]

Survey of various modes of transport with emphasis on service provided by each and facilities required. Introduction to physical and practical aspects of design of transport facilities including drainage, pavements, railroads, ports and harbors, pipelines and transportation terminals.

**Prerequisites:** (CIVE 3510 with a minimum grade of D- and CIVE 3210 with a minimum grade of D- and CIVE 2110 with a minimum grade of D-)**Term Offered:** Summer**CIVE 3610 Water Supply And Treatment**

[0-3 credit hours]

This course includes lecture, laboratory exercises and a team-based design project. The topics covered will include water quality, water supply, design of the physical and chemical treatment processes, water distribution systems and contemporary issues related to drinking water.

**Prerequisites:** CIVE 1170 with a minimum grade of D-**Term Offered:** Fall**CIVE 3620 Air Pollution Engineering I**

[3 credit hours]

Introduction to sources of air pollution, basic meteorological processes, air quality modeling, technology for air pollution control, odor control and noise pollution. Introduction to health effects of air pollutants, risk assessment and global atmospheric change. The students are required to use the USEPA programs for stack design and computations for ground level concentrations.

**Prerequisites:** CIVE 1170 with a minimum grade of D-**Term Offered:** Spring

**CIVE 3630 Wastewater Engineering**

[3 credit hours]

This course is focused on wastewater engineering processes. The class format may include lectures, laboratory and field exercises, problem sessions, and team-based design work. The topics covered will include wastewater characterization, collection, treatment process design, discharge, as well as stormwater management and modeling.

**Prerequisites:** CIVE 1170 with a minimum grade of D-**Term Offered:** Spring, Fall**CIVE 3720 Boundary Surveying**

[3 credit hours]

Analysis of evidence and procedures for boundary location, Researching local survey records, and Platting and Subdivision Design. Basic legal principles for boundary surveying. Evaluation, use, and admissibility of boundary evidence in courts of law. Discussion of surveyor's liability and role in courts of law.

**Prerequisites:** CIVE 1100 with a minimum grade of D- and CIVE 1110 with a minimum grade of D-**Term Offered:** Spring**CIVE 3730 Geodetic and Control Surveying**

[0-3 credit hours]

Introduction to Geodesy and Control Surveying including State Plane Coordinates, Azimuths from Celestial Observations, Development of Control Networks for Surveys, Introduction of Global Positioning Systems and Aerial Mapping, high accuracy measurements which account for the curvature of the Earth, and definitions of geodetic data for survey control.

**Prerequisites:** (CIVE 1100 or CET 1210) AND (CIVE 1110 or CET 2030)**Prerequisites:** (CIVE 1100 with a minimum grade of D- or CET 1210 with a minimum grade of D-) and (CIVE 1110 with a minimum grade of D- or CET 2030 with a minimum grade of D-)**Term Offered:** Summer**CIVE 3760 Route and Construction Surveying**

[0-3 credit hours]

Route Surveying and Geometric Design including Horizontal, Vertical and Spiral Curves, Topographic Surveying and Mapping, Earthwork Volumes, and Construction Layout and Staking. **Prerequisites:** (CIVE 1100 or CET 1210) AND (CIVE 1110 or CET 2030)

**Prerequisites:** (CIVE 1100 with a minimum grade of D- or CET 1210 with a minimum grade of D-) and (CIVE 1110 with a minimum grade of D- or CET 2030 with a minimum grade of D-)**Term Offered:** Summer**CIVE 3770 Cadastral Surveys and Ohio Land Systems**

[3 credit hours]

Study of the Official Surveys of the United States. Establishment and Retracement of Public Land Survey System Surveys and Colonial Land Surveys. History of Land Systems in the United States and Original Ohio Land Subdivisions. **Prerequisites:** (CIVE 1100 or CET 1210) AND (CIVE 1110 or CET 2030).

**Prerequisites:** (CIVE 1100 with a minimum grade of D- or CET 1210 with a minimum grade of D-) and (CIVE 1110 with a minimum grade of D- or CET 2030 with a minimum grade of D-)**Term Offered:** Spring**CIVE 3940 Co-Op Experience**

[1 credit hour]

Approved co-op work experience. Course may be repeated.

**Prerequisites:** CIVE 2000 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**CIVE 3950 Co-op Experience**

[1 credit hour]

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

**Prerequisites:** CIVE 3940 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**CIVE 4300 Advanced Mechanics Of Materials**

[3 credit hours]

Theory of elasticity, plane stress and plane problems, yield criteria and failure theories, bending of beams, energy methods, curved flexural members, unsymmetric bending, torsion, shear center and axisymmetrically loaded members.

**Prerequisites:** CIVE 1160 with a minimum grade of D- and (MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-)**Term Offered:** Spring, Fall**CIVE 4320 Computer-Aided Analysis of Structures**

[3 credit hours]

Matrix analysis of continuous beams, trusses and frames by force method and displacement method. Methods of consistent deformation and slope deflection will be discussed to complement the matrix analysis. Computer applications.

**Prerequisites:** CIVE 3310 with a minimum grade of D-**CIVE 4430 Structural Steel Design II**

[3 credit hours]

Study of local failure in beams, biaxial bending, plate girders, composite beams, semi-rigid composite connections and beam columns.

**Prerequisites:** CIVE 3410 with a minimum grade of D-**Term Offered:** Spring**CIVE 4440 Reinforced Concrete Design II**

[3 credit hours]

Analysis and design of columns under axial compression and biaxial bending. Consideration of bar cut-off, development lengths. Design of two-way slabs and building frames in reinforced concrete. Deflection of beams. Shear design provisions for deep beams.

**Prerequisites:** CIVE 3420 with a minimum grade of D-**CIVE 4480 Reinforced Masonry Design**

[3 credit hours]

Study of the design of reinforced and unreinforced masonry design, beams and walls and columns. Working stress design, strength design and empirical design are studied.

**Prerequisites:** CIVE 3420 with a minimum grade of D-**Term Offered:** Spring, Fall

**CIVE 4610 Hydrology And Water Resources**

[3 credit hours]

This course is directed to application of fluid mechanics, hydrology, and hydraulics to the discipline of water resources engineering. Topics covered include flow in closed conduits, flow in open channels, pump systems, surface water hydrology, and computational modeling for hydraulic systems. At the successful completion of this course, the student will learn to apply the fundamental principles to the practical solution of both analysis and design problems in closed and open conduit flows.

**Prerequisites:** CIVE 1170 with a minimum grade of D- and CHEE 2110 with a minimum grade of D-

**Term Offered:** Spring, Fall

**CIVE 4630 Indoor Air Quality**

[3 credit hours]

Characterization of indoor air pollutants, predictions of indoor air quality levels and indoor air quality control. Four to five design problems involving indoor air quality will be discussed/solved in the class. Special emphasis on the indoor radon and asbestos problems in the United States. Use of USEPA program.

**Term Offered:** Fall

**CIVE 4680 Environmental Law**

[3 credit hours]

An overview of the major federal environmental statutes: Clean Air Act, Clean Water Act, RCRA, CERCLA, etc. and legal perspective of why they were developed. Exposure to some basic legal principles which will be integrated into the overall study of environmental law. Provides a practical perspective on how the law can be applied to situations encountered by environmental engineers and scientists in the real world.

**Term Offered:** Fall

**CIVE 4690 Sustainability Engineering**

[3 credit hours]

Course develops students' abilities to apply the principles of sustainability to engineered systems. Course topics include sustainability definition and data, life cycle assessment based design, planetary boundaries, greenhouse gas emissions, green construction.

**Term Offered:** Spring, Fall

**CIVE 4710 Advanced Engineering Systems Modeling**

[3 credit hours]

A systematic approach to the analysis of complicated engineering system involving uncertain and probabilistic phenomena. Decision-making with multiple objectives, monte carlo simulation, reliability based design, and Markov process are studied.

**Prerequisites:** (CIVE 3120 with a minimum grade of D- and MIME 4000 with a minimum grade of D-)

**Term Offered:** Fall

**CIVE 4720 Boundary Control and Legal Principles**

[3 credit hours]

Establishment and Re-establishment of Land Boundaries, Locating Points and Line for Boundaries, Historical Development of Boundaries, Introduction of Rectangular System of Public Land Surveys, Systems to Describe Properties, Application of Legal Principles to Boundary Analysis.

**Prerequisites:** (CIVE 1100 or CET 1210) AND (CIVE 1110 or CET 2030).  
**Prerequisites:** (CIVE 1100 with a minimum grade of D- or CET 1210 with a minimum grade of D-) and (CIVE 1110 with a minimum grade of D- or CET 2030 with a minimum grade of D-)

**Term Offered:** Fall

**CIVE 4750 Senior Design Projects**

[0-3 credit hours]

To provide real world civil engineering design experience through a design problem as would be developed in an actual civil engineering consultant's office.

**Term Offered:** Spring, Fall

**CIVE 4770 Legal and Ethical Aspects of Surveying**

[3 credit hours]

Study of Statute and Common Law pertaining to Surveying and Property Rights, Interpretations and Methods to Describe Real Property, Minimum Standards for Surveys, Ethics for Professional Surveyors. **Prerequisites:** (CIVE 1100 or CET 1210) AND (CIVE 1110 or CET 2030)

**Prerequisites:** (CIVE 1100 with a minimum grade of D- or CET 1210 with a minimum grade of D-) and (CIVE 1110 with a minimum grade of D- or CET 2030 with a minimum grade of D-)

**Term Offered:** Fall

**CIVE 4900 Seminars In Civil Engineering**

[1-3 credit hours]

An opportunity for qualified upperclassmen to pursue a relevant area of Civil Engineering of particular personal interest under the supervision of a faculty member.

**Term Offered:** Spring, Summer, Fall

**CIVE 4980 Special Topics**

[1-3 credit hours]

A special topic at the undergraduate level in Civil or Environmental Engineering to be offered as a course during a term by a faculty member. This is intended for students nearing graduation. Credits will correspond to regular class meeting of one lecture hour per week per credit hour.

**Term Offered:** Spring, Summer, Fall

**CIVE 4990 Independent Study**

[1-3 credit hours]

An opportunity for a qualified upper class person to pursue a relevant area of Civil Engineering under the supervision of a faculty member.

**Term Offered:** Spring, Summer, Fall

## Classics (CLC)

**CLC 3100 Classical Mythology**

[3 credit hours]

A survey of Greek and Roman mythology in classical literature, sculpture and art.

**Term Offered:** Spring



# Communication (COMM)

## COMM 1010 Comm Principles And Practices

[3 credit hours]

An introductory course that provides instruction and practice in human communication including interpersonal communication, group discussion, public speaking and mass communication.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities

## COMM 2000 Media Communication And Society

[3 credit hours]

Overview of the media of mass communication, which considers social, economic and intellectual impact on American culture and democracy. Exploration of various mass media and their methods of shaping public perceptions.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities

## COMM 2120 Reporting

[3 credit hours]

Introduction to writing for publication in the student newspaper, developing skills in interviewing, listening, using primary sources, thinking critically, and mastering electronic data-collection methods.

**Prerequisites:** COMM 2130 with a minimum grade of D-

**Term Offered:** Spring, Fall

## COMM 2130 Media Writing 1

[3 credit hours]

Through various assigned readings, discussions, reporting and writing, students will become fully immersed in the media writing process. Students will develop story ideas, interview sources and write publication-ready news articles. Emphasis will be placed on journalistic ethics, credibility, accuracy and news judgment.

**Term Offered:** Spring, Summer, Fall

## COMM 2150 Digital Design for Media Communication

[3 credit hours]

This introductory course covers how the basics of image capturing/manipulation and design principles are commonly used in communication-related industries. Students will be introduced to industry-standard software and open-source applications used in strategic communication to create effective media messages. This course focuses specifically on how students can legally and ethically apply digital design in journalistic, persuasive, organizational and similar communication avenues (this course is not suitable for students primarily interested in learning graphic design).

**Term Offered:** Spring, Fall

## COMM 2160 Single Camera Production

[3 credit hours]

This is a laboratory/lecture course designed to introduce the student to the terminology and single camera production procedures used in field television production and serve as a foundation for story-telling through this medium.

**Term Offered:** Spring, Summer, Fall

## COMM 2210 Audio Production I

[3 credit hours]

The class is designed to introduce students to studio recording and editing sound. Students will produce commercials, public service announcements, and demos for announcing jobs. Audio Production I is also designed to be a pre-requisite class for Audio Production II.

**Term Offered:** Spring, Fall

## COMM 2220 Television Studio Production

[3 credit hours]

Students will work together to produce various types of live studio productions and will be introduced to the process of remote video acquisition and editing for use in living productions.

**Prerequisites:** COMM 2160 with a minimum grade of D-

**Term Offered:** Spring, Fall

## COMM 2300 Photojournalism

[3 credit hours]

An applied study of the conceptual, ethical, philosophical, historical and commercial aspects of photojournalism.

**Term Offered:** Spring, Fall

## COMM 2500 Social Media I: Introduction to Social Media

[3 credit hours]

This introductory course focuses on the development and use of social media in cultural, professional, and personal contexts. Students will explore niche and mainstream platforms across the world to become familiar with the landscape and global influence of social media. The practical, legal, and ethical role of social media in professions such as marketing, advertising, and public relations will also be covered. Students will use their acquired knowledge to reflect upon and enhance their professional digital presence.

**Term Offered:** Spring, Summer, Fall

## COMM 2600 Public Presentations

[3 credit hours]

Applies the principles of informative and persuasive communication in the construction, delivery, and critique of public presentations.

**Term Offered:** Spring, Summer, Fall

## COMM 2810 Nonverbal Communication

[3 credit hours]

Survey, analysis and application of research in nonverbal communication variables and phenomena.

**Term Offered:** Spring, Summer, Fall

## COMM 2820 Group Communication

[3 credit hours]

Theory and practice of group communication variables and processes with an emphasis on problem-solving approaches.

**Term Offered:** Spring, Summer, Fall

## COMM 2830 Organizational Communication

[3 credit hours]

This course examines the principles and theories of organizational communication. Particular attention will be devoted to how communication skills, culture, systems, ethics, new technology and power all affect, create and define organizations.

**Term Offered:** Spring, Summer, Fall

**COMM 2840 Interpersonal Communication**

[3 credit hours]

Review and application of interpersonal communication theory and research in a variety of one-to-one social contexts.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**COMM 2870 Communication Theory**

[3 credit hours]

An introduction to human communication theory and research directed toward understanding and applying theory and research in various communication contexts and for various communication outcomes.

**Term Offered:** Spring, Summer, Fall**COMM 2890 Crisis & Conflict in Organizations**

[3 credit hours]

An examination of communication variables that may reduce the potential for workplace conflict. Students survey theoretical models, conduct interviews with professionals and write analyses of case studies of successful conflict management.

**Term Offered:** Spring, Summer, Fall**COMM 2990 Independent Study**

[1-4 credit hours]

A freshman/sophomore seminar in which the student pursues a problem of special interest in communication. A prospectus must be submitted to the faculty member with whom the student will work.

**Term Offered:** Spring, Summer, Fall**COMM 3120 Media Writing II**

[3 credit hours]

This course will focus on identifying, developing and writing online articles about community and business issues. Students also will become versed in major state, local and national news.

**Prerequisites:** COMM 2130 with a minimum grade of D-**Term Offered:** Spring, Fall**COMM 3150 Feature Writing**

[3 credit hours]

Theory and practice in writing in various kinds of discourse for newspapers, magazines and electronic publications and writing for specialized audiences. Developing context, analysis, background and appropriate standards of evidence for publication.

**Prerequisites:** COMM 2130 with a minimum grade of D-**Term Offered:** Spring, Fall**COMM 3180 Media Communication Law**

[3 credit hours]

Case studies and readings in libel, privacy, access and other legal issues arising from constitutional, judicial and administrative laws that affect mass communication.

**Term Offered:** Spring, Fall**COMM 3210 Audio Production 2**

[3 credit hours]

This advanced course is designed to further enhance students' proficiency of audio and program production skills through project based learning.

**Prerequisites:** COMM 2210 with a minimum grade of D-**Term Offered:** Spring, Fall**COMM 3260 Live Sports Production**

[3 credit hours]

This is a laboratory/cooperative course held in collaboration with other university departments and clients with the result of producing live video content for broadcast on the ESPN online platform, via the WatchESPN app & ESPN+ subscription service, and for live display in various venues such as the Glass Bowl, Savage Arena, Doermann Theatre, and online live streaming.

**Term Offered:** Spring, Fall**COMM 3270 Multimedia Newswriting**

[3 credit hours]

Training in the skills required in the preparation, writing and editing of both radio and television news.

**Prerequisites:** COMM 2130 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**COMM 3330 Consumer Culture & the Media**

[3 credit hours]

The examination of practices, techniques, tools and strategies used in advertising and public relations campaigns and the subsequent impact these campaigns have on the growth of a contemporary consumer culture. In addition, this class will research the theory and techniques, historical underpinnings, and the overarching power structure of a capitalist media system.

**Prerequisites:** COMM 2000 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**COMM 3340 Visual Communication**

[3 credit hours]

This is a practice-based intermediate course with a hands-on approach to visual communication and focusses on the use of visual and textual elements in communication, and how they serve to inform, to persuade, and to entertain. Students will be trained in advanced features of industry standard software as they create a variety of multimedia artifacts in digital photo galleries, promotional material such as posters/brochures, newsletters for print/digital platforms, as well as memes and infographics.

**Prerequisites:** COMM 2150 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**COMM 3380 Media Producing and Performance**

[3 credit hours]

The class is designed to give students experience being in front of the camera through a variety of performance assignments that will give them practice at interview skills and reading off a teleprompter. In addition to performance, students will produce content by writing and creating material for different media platforms. Students will gain experience in both producing and performing for the media.

**Term Offered:** Spring, Fall

**COMM 3500 Social Media II: Social Media Communication Strategies**

[3 credit hours]

This intermediate course will focus on the presence of social media in various contexts of communication (e.g., interpersonal, organizational, public, media, etc.). With an emphasis on diversity and inclusion, students will learn strategies for using social media in these contexts to effectively communicate with others. The strategies covered will focus on influential tools for social media engagement, content creation and maintenance techniques, the principles of social media analytics, building relationships with customers and clients, as well as planning, executing, and evaluating social media campaigns. Students will earn an external social media certificate and will use their acquired knowledge to analyze the effectiveness of social media communication strategies as well as create a digital portfolio. Social Media I is a prerequisite for this course.

**Prerequisites:** COMM 2500 with a minimum grade of C-**Term Offered:** Spring, Summer, Fall**COMM 3610 Speech Writing**

[3 credit hours]

Applies principles of effective public relations communication to the practice of developing speeches for others and composing publicity materials.

**Term Offered:** Spring, Fall**COMM 3710 Podcasting**

[3 credit hours]

In this course, students will focus on necessary and skills for podcast production, identifying a target audience, marketing and distribution, analytics, ethics, and monetization. Further, students will build their collaboration skills by working in teams to produce podcasts.

**Prerequisites:** COMM 2210 with a minimum grade of D-**Term Offered:** Spring, Fall**COMM 3720 Introduction to Public Relations**

[3 credit hours]

Public relations principles, planning and methods in business, government, educational institutions and other organizations. Examination of law, ethics, professionalism, history, theory, strategies and practices of the profession.

**Term Offered:** Spring, Summer, Fall**COMM 3750 Cultural Diversity in Communication**

[3 credit hours]

Cultural Diversity in Communication examines the basic elements of interpersonal communication and culture as the two relate to one another in a public relations environment. Emphasis is given to the influence of culture on the interpretation of the communication act and to the communication skills that enhance cultural diversity in communication while practicing public relations.

**Term Offered:** Spring, Summer, Fall**COMM 3760 Health Communication**

[3 credit hours]

Review and application of health communication theory, research, and practice in a variety of contexts.

**COMM 3800 Social Media III: Social Media Campaigns**

[3 credit hours]

In this advanced course, students will apply the knowledge they have garnered in previous social media courses to develop, implement, and evaluate a social media campaign for an actual client. The course will focus on key elements such as determining campaign objectives, identifying target markets, developing strategies to engage those markets through relevant social media channels, content creation and management, and metrics to measure progress and success. Social Media I and II are prerequisites for this course.

**Prerequisites:** COMM 2500 with a minimum grade of C- and COMM 3500 with a minimum grade of C-**Term Offered:** Spring, Summer, Fall**COMM 3820 Persuasion Theory**

[3 credit hours]

Examination of the theory and practices used in persuasive communication in public presentations, advertising, sales and political campaigns.

**Term Offered:** Spring, Summer, Fall**COMM 3830 Basic Principles Of Debate And Forensics**

[3 credit hours]

Theory and practice in reasoned discourse; analysis, evidence, logical forms and fallacies. Problems and procedures in administering a forensic program, teaching and directing debate and individual speaking events.

**Term Offered:** Spring**COMM 3850 Research Methods in Everyday Life**

[3 credit hours]

Introduction to basic research methods and application of these methods in everyday life.

**Term Offered:** Spring, Fall**COMM 3880 Professional Business Communication**

[3 credit hours]

Developing oral and written business communication skills through practice in public speaking, interviewing, resume writing, and communication in various formats.

**Term Offered:** Spring, Summer, Fall**COMM 4040 Storytelling in Public and Private Spaces**

[3 credit hours]

Students will apply traditional storytelling techniques to empower sources to tell anecdotes during interviews, to tell their own true stories, to help readers understand the meaning of news as well as life's challenges. Via human-interest articles, writers will show rather than tell things.

**Term Offered:** Spring, Fall**COMM 4090 Media Communication Ethics**

[3 credit hours]

Investigation of problems and practical application of classical theories as well as current strategies to confront ethical crises in mass-media settings.

**Term Offered:** Spring, Fall

**COMM 4100 Multimedia Journalism**

[4 credit hours]

Developing a thorough understanding of researching, writing, and presenting television/online news. Includes studio and remote productions.

**Prerequisites:** COMM 2220 with a minimum grade of D- or COMM 2160 with a minimum grade of D- and COMM 2130 with a minimum grade of C-

**Term Offered:** Spring, Fall

**COMM 4110 High School Publications**

[3 credit hours]

Problems involved in the production of high school newspapers and yearbooks including approaches to design, advertising, content, news, editorials, administration and business management.

**Term Offered:** Fall

**COMM 4220 Advanced Television Production**

[4 credit hours]

Advanced principles and aesthetic considerations in the production of various television programs. Includes working with remote equipment and digital editing.

**Prerequisites:** COMM 2160 with a minimum grade of D-

**Term Offered:** Spring, Fall

**COMM 4250 Media Communication History**

[3 credit hours]

Historical consideration of the media from colonial era to the present, with special emphasis on learning through problem-solving and critical thinking about the role of mass communication as a force in shaping national identity.

**Term Offered:** Spring, Fall

**COMM 4260 Communication in Non-Profit Organizations**

[3 credit hours]

COMM 4260 COMMUNICATING IN NON-PROFIT ORGANIZATIONS.

[3 hours] This course examines the communication strategies Non-Profit Organizations use to publicize their charitable goals to potential donors and how they describe their progress to governmental watchdog committees.

**COMM 4270 Special Event Planning**

[3 credit hours]

Examines the practices, and procedures associated with identification, analysis, planning, evaluation and control of the operational, fiscal, and legal risks of event planning.

**Term Offered:** Spring, Summer, Fall

**COMM 4330 Integrated Media**

[3 credit hours]

The goal of this course is media design literacy. Students will develop the ability to create successful mediate messages through various mediums and new technologies.

**Prerequisites:** COMM 2630 with a minimum grade of D- or COMM 3340 with a minimum grade of D- or COMM 2130 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**COMM 4340 Advanced Visual Communication**

[3 credit hours]

This is an advanced capstone course in which students will apply knowledge gained from introductory and intermediate design courses to create a cohesive visual media and web presence for a real-world business, organization or other topics of interest. The course will focus on exploring industry standard software to develop and publish a culminating multimedia website. Students will also be introduced to the basics of HTML coding, CSS, and common WYSIWYG applications for website development.

**Prerequisites:** COMM 3340 with a minimum grade of C-

**Term Offered:** Spring, Fall

**COMM 4630 Public Relations Campaigns**

[3 credit hours]

A thorough examination of the practices, techniques, tools and strategies used in contemporary public relations campaigns. Students will research the techniques and components of a PR strategic plan and then compile two original plans during the course of the semester.

**Prerequisites:** COMM 3720 with a minimum grade of D-

**Term Offered:** Spring, Fall

**COMM 4640 Public Relations Case Studies**

[3 credit hours]

Analysis of successful and unsuccessful public relations efforts and programs. Emphasis on the theoretical and ethical foundations of successful public relations programming.

**Prerequisites:** COMM 3720 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**COMM 4820 Family Communication**

[3 credit hours]

Explores variables and processes of family communication emphasizing theory, definitions of family, roles & rules, conflict, intimacy, societal influences, and effects on the individual and the family as a whole.

**Term Offered:** Spring, Summer

**COMM 4830 Gender, Culture & Communication**

[3 credit hours]

Cross-listed as WGST-4350. Explores how gender and culture simultaneously shape and are shaped by communication through relationships, institutions, and society. WAC class.

**Term Offered:** Spring, Summer, Fall

**COMM 4900 Communication Seminar**

[3-4 credit hours]

An in-depth examination of a communication topic, problem or media event. May be writing intensive.

**Term Offered:** Spring, Summer, Fall

**COMM 4910 Communication Studies Capstone**

[3 credit hours]

Application of knowledge and skills through a project or research investigation related to an area of communication.

**Prerequisites:** COMM 2000 with a minimum grade of D- and COMM 2130 with a minimum grade of D- and COMM 2600 with a minimum grade of D- and COMM 2820 with a minimum grade of D- and COMM 2840 with a minimum grade of D- and COMM 2870 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**COMM 4940 Communication Internship**

[1-6 credit hours]

Professional training in communication relating to newspaper work, public relations, broadcasting etc. Arrangements with the appropriate communication organization must be made in consultation with the internship director prior to enrollment. Course offered P/NC.

**Term Offered:** Spring, Summer, Fall**COMM 4990 Independent Study**

[1-4 credit hours]

A seminar in which the student pursues a problem of special interest in communication. A prospectus must be submitted prior to registration to the participating faculty member.

**Term Offered:** Spring, Summer, Fall

## Communication and the Arts (COCA)

**COCA 2000 Mindful Creativity**

[3 credit hours]

Introduction to the principles, skills and practice of Mindfulness and their relationship to the development of creativity. Exploration of application to daily life including academic and professional situations.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

## Computer Network Technology (CNET)

**CNET 2100 Microsoft Operating Systems**

[3 credit hours]

In-depth study of a contemporary network operating system. Topics include operating system installation and upgrade, configuration, management and troubleshooting.

**Term Offered:** Fall**CNET 2150 Computer Hardware**

[3 credit hours]

Knowledge of computer hardware for the purpose of acquisition, installation and maintenance at the equipment level. The curriculum is aligned with the A+ certification standards.

**Term Offered:** Spring, Summer, Fall**CNET 2200 Network Technologies**

[4 credit hours]

Examines the network technologies utilized in today's networks. Emphasis is placed on understanding hardware and software concepts and protocols referred to in technical publications and advanced network studies.

**Term Offered:** Spring, Summer**CNET 2300 Network Operating Systems II**

[4 credit hours]

This course offers an in-depth study of a contemporary network operating system. Topics include operating system installation and upgrade, configuration, management and troubleshooting.

**Term Offered:** Spring, Fall**CNET 2400 Network Operating System Support**

[4 credit hours]

Examines the support aspects of a contemporary network operating system in a local area network environment. Topics include operating system installation, upgrade, configuration, management and troubleshooting.

**Term Offered:** Spring, Fall**CNET 2410 Network Services and Infrastructures**

[3 credit hours]

This course culminates the CNET server curriculum by focusing on vital network services and supporting network infrastructure. Topics include network budgeting, design, planning and implementation, as well as enterprise-wide internetworking.

**Prerequisites:** CNET 2400 with a minimum grade of D-**Term Offered:** Spring, Fall

## Computer Science Engineering Technology (CSET)

**CSET 1100 Introduction to Computer Science and Engineering Technology**

[4 credit hours]

This is the first course in computer hardware and software for CSET majors. Single and multi-user operating systems, command-line processing, program planning and creation and simple Internet tools are covered.

**Term Offered:** Spring, Fall**CSET 1200 Object Oriented Programming and Data Structures**

[3 credit hours]

This course teaches object oriented program design, analysis, and verification with an introduction to data structures including but not limited to list, queue, stack and tree. The course emphasizes Programming Methodology and its impact on programs and the use of Data Abstractions and the implementation of Data Abstractions using classes.

**Prerequisites:** CSET 1100 with a minimum grade of D- and ENGL 1110 with a minimum grade of D-**Term Offered:** Spring, Fall**CSET 2200 PC and Industrial Networks**

[0-4 credit hours]

Current concepts and technologies used with personal computers and PLCs in both industrial (factory-floor) and commercial data networks. Topics include PC networking hardware and software, PLC hardware and programming and PLC networking alternatives.

**Prerequisites:** CSET 1100 with a minimum grade of C- or EET 2210 with a minimum grade of C- or ITEC 2100 with a minimum grade of C-**Term Offered:** Spring, Summer, Fall

**CSET 2230 Assembly Language and Computer Architecture**

[4 credit hours]

This course focuses on the analysis, design, and programming of computer microprocessor architectures. Topics include performance metrics, the design of a machine's instruction set architecture (ISA). This course examines the bridge between low-level hardware and executable software, and includes programming in assembly language (representing software programs).

**Prerequisites:** CSET 1100 with a minimum grade of D- and EET 2210 with a minimum grade of D-

**Term Offered:** Summer, Fall

**CSET 2520 Discrete Structures**

[3 credit hours]

An introduction to the discrete structures used in computer science to develop software including proof techniques, boolean logic, graphs, trees, recurrence relations, and functions.

**Prerequisites:** PHIL 1010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**CSET 3100 Advanced Web Site Design**

[3 credit hours]

HTML forms, creation of static and animated web graphics, Dynamic Fonts, SMIL (Synchronized Multimedia Integration Language) as it relates to G2, Realtex, Realpix and XML. The course also covers Frames, META Tags, Optimizing Speed, Cookies, Imapemapping (from both sides), HTML, tables and Shockwave.

**Prerequisites:** CSET 1100 with a minimum grade of D-

**Term Offered:** Spring, Fall

**CSET 3150 Introduction to Algorithms**

[4 credit hours]

The course covers topics in basic algorithm design and analysis of traditional algorithms such as sorting algorithms, selection algorithms and graph algorithms, with the focus on building correct and efficient algorithms based on the known algorithms. Besides, advanced data structures such as hash tables, binary search trees are covered in the course.

**Prerequisites:** CSET 2230 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**CSET 3200 Client/Server Computing**

[3 credit hours]

Covers client/server architecture and programming techniques. Major topics include two-tier and three-tier client server architectures, programming considerations, cleanlayering, advanced graphical user interface controls, database processing, transaction processing and monitoring.

**Term Offered:** Spring, Summer, Fall

**CSET 3250 Client-Side Scripting**

[3 credit hours]

Introduction to the Document Object Model (DOM), JavaScript and VBScript scripting languages, cascading style sheets, browser recognition, browser-specific content, data validation and layers.

**Prerequisites:** CSET 3100 with a minimum grade of D-

**Term Offered:** Spring, Fall

**CSET 3300 Database-Driven Web Sites**

[4 credit hours]

This course covers the creation of dynamic Web applications that interact with a database using server-side scripts and server programs. The material covered includes database fundamentals, server-side scripting language functions for database manipulation and server considerations.

**Prerequisites:** CSET 1100 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**CSET 3400 Unix System Administration**

[3 credit hours]

Commands and methods to install and manage a UNIX system. System administration topics include configuration, user and file management, backup procedures, peripheral devices, performance tuning and troubleshooting.

**Term Offered:** Spring

**CSET 3600 Software Engineering and Human Interfacing**

[4 credit hours]

An introduction to software engineering processes for technology students. Includes: user requirements, software specification, design approaches, human-computer interfacing, software tools, validation, modification, maintenance, documentation, lifecycle models, and intellectual property considerations.

**Term Offered:** Spring, Summer, Fall

**CSET 4100 SERVER-SIDE PROGRAMMING**

[3 credit hours]

Covers Common Gateway Interface (CGI) programming on the Internet using the most popular scripting languages. Topics include client-side programs, server-side programs, distributed database creation and searching.

**Term Offered:** Summer, Fall

**CSET 4150 Web Server Administration**

[3 credit hours]

Installation and configuration of the web server operating systems (e.g., UNIX, Windows NT), installation and administration of web daemon (e.g., Apache, Microsoft IIS). Site management, including file and directory hierarchy, web log analysis, installation and configuration of various utilities for gopher, ftp, text ending and email.

**Prerequisites:** CSET 2200 with a minimum grade of D-

**Term Offered:** Summer, Fall

**CSET 4250 Applied Programming Languages**

[3 credit hours]

How to select the most appropriate language for a specific engineering technology application. Topics include comparison of programming languages by evolution, formal specifications, structures, features, application domains, programming paradigms, implementation of syntax, semantics and program run-time behavior.

**Term Offered:** Spring, Fall

**CSET 4350 Operating Systems**

[3 credit hours]

This course teaches the fundamentals of operating systems concepts. It discusses the following topics: process scheduling, memory management, kernel and user mode, system calls, context switches, inter-process communication, I/O and file systems.

**Prerequisites:** CSET 2230 with a minimum grade of D-

**Term Offered:** Summer, Fall

**CSET 4750 Computer Networks And Data Communication**

[4 credit hours]

Computer network architectures and their application to industry needs. Major topics include vocabulary, hardware, design concepts, current issues, trends, hardware, multi-user operating systems, network protocols, local and wide area networks, intranet and internet communications, analog and digital data transmissions.

**Prerequisites:** CSET 2200 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**CSET 4850 Computer and Network Security**

[4 credit hours]

This course provides an introduction to the concepts of computer security, topics include, but not limited to basic cryptography, security policies, network security, program security and systems security. Hands-on lab projects are provided for important topics.

**Prerequisites:** CSET 4750 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

## Computer Technology (CMPT)

**CMPT 1010 Computer Fundamentals**

[1 credit hour]

Introduction to computers. Topics covered are hardware, software, computer operation, terminology and applications.

**Term Offered:** Spring, Fall**CMPT 1020 Computer Concepts**

[4 credit hours]

Introduction to computer software, hardware, and processes associated with contemporary computer systems. Topics include operating systems, user applications, e-mail, WWW, and search capabilities. Emphasis is placed on the Internet and networking.

**Term Offered:** Spring, Summer, Fall**CMPT 1100 Microsoft Office Applications**

[3 credit hours]

Concepts and techniques of the application of Microsoft Word, Excel, Access and PowerPoint in the workplace.

**Term Offered:** Spring, Summer, Fall**CMPT 1110 Pc Operating Systems**

[3 credit hours]

A+ certification aligned study of both command line and graphical user-based current PC operating systems. Topics include installation and upgrade, configuration, management, troubleshooting and network connectivity.

**Term Offered:** Fall**CMPT 1120 Visual Basic Programming**

[4 credit hours]

A currently popular programming language, such as Microsoft Visual Studio, will be used to create stand-alone applications. Topics such as object-oriented coding, logical procedures and proper documentation are stressed.

**Term Offered:** Spring**CMPT 1320 Internet And The World Wide Web**

[1 credit hour]

Topics include history of the Internet, IP addressing, World Wide Web, HTML, and CSS. Students will learn the history and functionality of the Internet and create a two-page website using HTML and CSS.

**Term Offered:** Spring, Summer, Fall**CMPT 1400 Dreamweaver Web Page Development**

[3 credit hours]

Using Dreamweaver students will learn how to plan and develop a successful Web site, organize page content, format Web sites using CSS styles, produce dynamic Web pages and add animation using rich media and reusable assets and forms.

**Term Offered:** Spring, Fall**CMPT 1410 Microsoft Excel Spreadsheet Application**

[2 credit hours]

Introduces the basic features of Microsoft Excel and spreadsheet concepts to design and create accurate professional worksheets for use in business and industry. Hands-on exercises include entering data; creating formulas; professional formatting; creating charts; adding visual interest, creating, sorting, and filtering lists; creating and using templates; and working with functions. Focuses on proofing methods to ensure accuracy and critical thinking to determine what data to present and how to present it.

**Term Offered:** Spring, Summer, Fall**CMPT 1420 Microsoft Access Database Applications**

[2 credit hours]

Hands-on analysis of the use of Access in solving workplace problems with an emphasis on the entering, updating, manipulating, storing and retrieving of information.

**Term Offered:** Spring, Fall**CMPT 1430 Microsoft Word**

[2 credit hours]

Introduces the basic features of Microsoft Word and word processing concepts to create, edit, and print documents for use in business, industry, and to enhance professional documents. Hands-on exercises include creating and formatting letters, memos, and business documents; producing multi-page documents; creating headers and footers; becoming familiar with the writing/editing tools; enhancing documents with images; creating and formatting tables, and producing mail-merged letters, envelopes, and mailing labels.

**Term Offered:** Spring, Summer, Fall**CMPT 1440 Microsoft Powerpoint Presentations**

[2 credit hours]

Introduces the basic features of Microsoft PowerPoint and electronic presentation concepts to create, edit, and deliver presentations for use in business, industry, and to enhance informational presentations. Emphasis includes planning, creating, and editing presentations for delivery on a projection system, personal computer, or to run automatically on a kiosk system. Exercises include designing using themes; applying animations, sound, and transitions; using and customizing templates; and adding tables, charts and graphics for improved comprehension and clarity.

**Term Offered:** Spring, Summer, Fall

**CMPT 1450 Microsoft Outlook**

[1 credit hour]

Students will learn a popular messaging and personal information management program used to send and receive e-mail and manage messages, contacts, appointments and tasks.

**Term Offered:** Spring, Fall**CMPT 1500 Flash Web Animation**

[3 credit hours]

This course offers the opportunity to learn entry-level web animation that includes frame by frame animation, animated shapes, using masks, and motion tweens. In this course you will be learning how to create animated holiday e-cards, animated short movies, and much more.

**Term Offered:** Spring, Fall**CMPT 1510 Digital Design Fundamentals**

[3 credit hours]

Theory and the practical application in working with digitally-produced documents to provide well-designed business communication pieces for print and online distribution. The basic principles of good layout/design, image creation via scanner/camera, font selection/technology, image file formats, and typography are addressed. Also the fundamentals of print technology from the desktop user's perspective with attention to image resolution, halftones/screen frequency, stock selection, bindery, job scheduling concerns, and color use and theory to prepare files for professional print production are covered.

**Prerequisites:** CMPT 1100 with a minimum grade of D-**CMPT 1520 Beginning Adobe Illustrator**

[3 credit hours]

Introduces the creation of professional vector images using Adobe Illustrator Creative Cloud. Hands-on exercises include creating logos, illustrations, brochures, and posters. Techniques studied include drawing basic shapes, creating vector paths, using the pen and pencil tools, brushes, and symbols, transforming artwork, creating patterns, gradients, blends, symbols, and creating compound paths. Additional topics covered are color theory, typography, 3D vector effects, drawing in perspective, creating illustration components for the web, and importing images.

**Term Offered:** Spring, Fall**CMPT 1530 Beginning Adobe Photoshop**

[3 credit hours]

Introduces the creation of professional raster photos using Adobe Photoshop Creative Cloud, Camera Raw, and Bridge. Hands-on exercises include photo retouching and repairing; color painting; applying masking, layer styles, and filters; advanced compositing; designing with type; vector drawing techniques; preparing files for the Web; and using Photoshop's automation features. Additional topics covered are image resolution; file formats; color theory; ethical and copyright issues involving photo editing; and using various tools and features.

**Term Offered:** Spring, Summer, Fall**CMPT 1550 Adobe Acrobat**

[3 credit hours]

Using Adobe Acrobat DC, learn to create, edit, publish, and sign Portable Document Format (PDF) files for distribution of electronic files across Mac and Windows platforms, devices, and among different software programs. Document security, capturing scans and making them editable, creating searchable and interactive PDF forms, and improving workflow collaboration and production speed will be addressed in this hands-on, project-based course.

**CMPT 1600 Internet Design And Publishing**

[3 credit hours]

This course offers a broad overview and extensive practical experience in the design and production of Web pages. Students learn current Web design technology.

**Term Offered:** Spring, Fall**CMPT 1700 Blogging and Social Networking**

[3 credit hours]

This course offers a broad overview and extensive practical experience with blogging and social media. In this course, you will learn about designing a blog site and gain practical experience. You will also be learning about all the new social media available on the web.

**Term Offered:** Spring, Summer, Fall**CMPT 2030 C Family Programming**

[4 credit hours]

Students are introduced to the C family of programming languages. Students will write computer programs using the most up-to-date versions of this language family.

**Term Offered:** Spring, Fall**CMPT 2410 Adobe InDesign Desktop Publishing**

[3 credit hours]

Introduces the creation of professional desktop published documents using Adobe InDesign Creative Cloud, to design effective and engaging print publications, such as announcements, fliers, advertisements, and reports. Hands-on exercises include designing and modifying layouts, creating master pages and styles, importing, flowing, and editing text, importing graphics, and designing tables. Additional topics include typography and design basics, creating PDF forms, exploring the publishing cycle, printing and exporting basics, and creating ePubs.

**Term Offered:** Spring**CMPT 2430 Advanced Microsoft Word**

[2 credit hours]

Covers advanced features of Word through complex formatting techniques such as customizing paragraphs and pages; using bullets and multi-level numbering features; and formatting long documents with separate sections, headers, and footers. Hands-on exercises include proofing with spelling, grammar, and readability tools; using auto-entry and customization features; working with styles and macros; creating reference footnotes for academic papers; generating tables of content and indexes; working with, comparing, and tracking shared documents; and embedding, and linking objects.

**Prerequisites:** CMPT 1430 with a minimum grade of D-**Term Offered:** Fall**CMPT 2460 Advanced Microsoft Excel Spreadsheet**

[2 credit hours]

Covers advanced features of Excel to design and create accurate, professional worksheets using advanced functions and formulas. These include financial, logical, statistical, lookup, and database functions. Hands-on exercises include exploring the advanced features of data tables, creating complex graphs, using pivot tables; performing "what-if" data analysis, examining various scenario models, protecting and sharing workbooks, using 3-D cell references, automating with macros; and importing, exporting, and distributing data, and customizing the software to suit various needs.

**Prerequisites:** CMPT 1410 with a minimum grade of D-**Term Offered:** Spring



**CMPT 2500 Help Desk Concepts**

[3 credit hours]

This course provides students with a core set of technical and communication skills. Topics include hard skills such as security, troubleshooting, working with networks and mobile devices. Personal computer hardware and operating systems and also discussed. Soft skills includes verbal and non-verbal communication, time management and active listening. After taking this course, students will be prepared for positions as a help desk specialist.

**Term Offered:** Spring, Fall**CMPT 2530 Advanced Adobe Photoshop**

[3 credit hours]

An advanced, hands-on application of Adobe Photoshop for Digital Imaging. Students capture, create, manipulate and edit images for high-end output.

**Prerequisites:** CMPT 1530 with a minimum grade of D-**Term Offered:** Spring**CMPT 2620 Web Site Maintenance**

[3 credit hours]

This course develops skills for students who will function as Web developers or project managers responsible for increasing Web site traffic, updating Web content and designs. Students learn planning issues related to Web design and redesign.

**Term Offered:** Spring, Fall**CMPT 2990 Independent Study**

[1-4 credit hours]

Students will study a computer-related subject mutually agreed upon between the student and the instructor. The format may include lecture, computer lab and/or practical experience.

**Term Offered:** Spring, Summer, Fall

## Constitutional Thought and Leadership (CLT)

**CLT 3000 The Art of Statesmanship and the Civic Life**

[3 credit hours]

This course examines the art of statesmanship, the meaning of political greatness and the means of educating aspiring young statesmen and stateswomen. The ambition, moral character, cunning, prudence, and grit required for effective statesmanship are analyzed using books written by past statesmen for future statesmen. The course also explores whether the life of leadership is a desirable way of life. Differences between classical and modern statesmanship are considered, in addition to the unique demands that different regimes and natural circumstances place on founders and leaders.

**Term Offered:** Fall**CLT 3010 The Art of Rhetoric and the Civic Life**

[3 credit hours]

This course examines the art of rhetoric and the role that rhetoric plays in different political societies. The purposes and limitations of rhetoric and public deliberation in modern democracies will be analyzed through close readings of great speeches from classical to modern times. The tradition of great speeches by American men and women is a special focus of this course. Other forms of writing, including philosophical texts, dialogues, essays, and literary works will be considered. Students will also write and present their own oration and may receive feedback from professional speechwriters.

**Term Offered:** Spring**CLT 3500 Civic Discourse**

[3 credit hours]

This course explores the value of civic discourse to an open, free, and tolerant society and provides students with an opportunity to learn and practice the core skills necessary to civic discourse. Students will study the underlying philosophic justifications for maintaining an open society and the connection between civic discourse and an open society. Students will also study how to productively discuss difficult or sensitive subjects with others who hold different or contrary views, and the value of doing so. The class will confront a series of contemporary "hot-button" issues (i.e. gun control, immigration, abortion, policing) to allow students the opportunity to engage in civic discourse.

**Term Offered:** Fall**CLT 3510 Competing Theories of Justice**

[3 credit hours]

This course explores competing theories of justice as models we can use to explore and think more carefully about contemporary controversies in public, political, and social spheres. Students will assess the practical applications of those theories in different situations. Students will also research and prepare an executive summary on different actions, laws or public policies. They will present these summaries in a mini-conference that will take place as part of the course.

**Term Offered:** Spring

## Construction Engineering Technology (CET)

**CET 1010 Intro to Constr Eng Technology**

[1 credit hour]

An introduction to Construction Engineering by introducing career sectors, current topics, teamwork, safety and the curriculum in order to provide the freshman CET student with building blocks for success within the program.

**Term Offered:** Fall**CET 1050 Computers for Construction**

[3 credit hours]

This course covers fundamental concepts, techniques and the application of microcomputers to the solution of engineering technology problems. This course provides an introduction to microcomputer operating systems and technical productivity software in construction engineering. The course also serves as an introduction to specialized software used in the profession and in future courses with the curriculum, (AutoCAD, WinEst, Microsoft Project, Sketch-Up).

**Term Offered:** Spring, Fall

**CET 1100 Architectural Drafting**

[0-3 credit hours]

"This course covers the basics of architectural graphic techniques beginning with fundamental drafting skills and representational processes, and progressing toward the production of a complete construction documentation package, including plans, sections, elevations and detail views of an architectural project. The course will emphasize methods and procedures of hand drafting, while introducing computer aided drafting and design production techniques."

**Term Offered:** Spring, Fall**CET 1150 Construction Materials And Codes**

[3 credit hours]

This course consists of an introduction to terminologies and properties of construction materials and techniques from foundation, floor, wall and roof systems, as well as thermal and moisture protection and finish work. Sources of manufacturer's material information are discussed. An introduction is made into the various building codes and code organizations as related to new and existing buildings.

**Term Offered:** Spring, Fall**CET 1200 Engineering Mechanics**

[4 credit hours]

This course covers the basics of statics, load tracing and analysis of determinate structures. Special attention is paid to the application of the laws of statics and strength of materials as they relate to construction materials, techniques and methods. The course covers the analysis of direct and indirect stresses in structural members: stress, strain, bending moment, shear and deflection; and begins the structural design course progression with the design of beams, columns and structural connections.

**Prerequisites:** (PHYS 2010 with a minimum grade of D- or PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of D- or PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-) and (MATH 1330 with a minimum grade of D- or MATH 1340 with a minimum grade of D-)

**Term Offered:** Fall**CET 1210 Surveying**

[0-3 credit hours]

Study of construction and land surveying techniques, including the use of a steel tape, level, transit and total station. Laboratory will stress surveying measurement and layout techniques. Laboratory exercises will also introduce "AUTOCAD" and associated third party software applications to surveying.

**Prerequisites:** MATH 1330 with a minimum grade of D- or MATH 1340 with a minimum grade of D-

**Term Offered:** Spring**CET 1250 Building Systems**

[3 credit hours]

This course provides an introduction to selected building systems, equipment technologies and their capabilities. These systems include, but are not limited to: HVAC, plumbing, electrical, and other mechanical operations as they relate to building construction and building operations. Fundamentals of designing and sizing these systems will also be covered.

**Prerequisites:** CET 1100 with a minimum grade of D- and CET 1150 with a minimum grade of D- and (MATH 1320 with a minimum grade of D- or MATH 1330 with a minimum grade of D- or MATH 1340 with a minimum grade of D- or MATH 1850 with a minimum grade of D- or MATH 2450 with a minimum grade of D-)

**Term Offered:** Spring, Fall**CET 2010 Construction Safety**

[1 credit hour]

Minimum safety requirements are reviewed and discussed in a practical context for immediate application in the construction site. Course material includes review of the OSH Act, recording and reporting requirements, and citation policies.

**Prerequisites:** CET 1010 with a minimum grade of D-

**Term Offered:** Fall**CET 2030 Construction Graphics**

[3 credit hours]

Computer drafting as related to construction engineering projects such as highways, streets, sanitary and storm sewers, and building sites. The computer drafting portion will use Microstation and associated third party support (e.g. Geopak).

**Prerequisites:** CET 1100 with a minimum grade of D- and CET 1210 with a minimum grade of D-

**Term Offered:** Spring, Fall**CET 2060 Construction Estimating**

[0-3 credit hours]

This course covers the fundamentals, concepts, and strategies used in the process of estimating construction costs. The organization of construction estimates and the bidding process will be discussed while focusing on materials, construction methods and labor strategies and costs. Use of spreadsheet software, as well as dedicated estimating and takeoff software will be explored in the recitation sections of the course.

**Prerequisites:** CET 1100 with a minimum grade of D- and CET 1150 with a minimum grade of D-

**Term Offered:** Spring, Fall**CET 2110 Materials Testing**

[0-3 credit hours]

Design of portland and asphalt cement concrete mixes and associated quality control tests of mortar, aggregates, asphalt cements, portland and asphaltic concrete.

**Prerequisites:** CET 1150 with a minimum grade of D-

**Term Offered:** Fall

**CET 2220 Soil Mechanics**

[0-3 credit hours]

This course covers the characteristics and behavior of soil as it relates to the design and construction of civil engineering projects. The course will focus on identifying types of soils, the methods by which soils act and react under stress and how they can be manipulated and modified. Standard soils testing procedures will be used to produce a basic knowledge of soil and its pertinent properties.

**Prerequisites:** CET 1200 with a minimum grade of D- and ENGL 1110 with a minimum grade of D- and (ENGL 1130 with a minimum grade of D- or ENGL 2950 with a minimum grade of D-)

**Term Offered:** Spring

**CET 2250 Structural Design**

[4 credit hours]

This course covers the principles of statics and strength of materials as applied to structural design of steel and timber products, using applicable codes. Applications of both allowable stress, load factored design and unified design methods will be covered for both spanning and axial elements.

**Prerequisites:** CET 1200 with a minimum grade of D-

**Term Offered:** Spring

**CET 2980 Special Topics**

[1-4 credit hours]

Student performs work on a specialized project of an advanced nature under the supervision of a Construction Engineering Technology faculty member.

**Term Offered:** Spring, Fall

**CET 3010 Architectural CADD**

[4 credit hours]

This course is designed as an introduction to digital architectural documentation techniques for design, building and lifecycle building maintenance. The course explores techniques using both traditional CAD approaches as well as BIM and parametric modeling. The course emphasizes methods and procedures of AutoCAD, parametric modeling through Bentley Building and AutoCAD for Architecture and develops greater skills in BIM through Autodesk's Revit.

**Prerequisites:** CET 1100 with a minimum grade of D-

**Term Offered:** Spring, Fall

**CET 3020 Sustainability for Construction**

[3 credit hours]

This course is an introduction to sustainable design, green building and the LEED rating system. Roles of engineers and constructors are examined within the integrated design approach to green building and sustainable design. Topics covered include sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor air quality and innovative design. The course is structured as a way to prepare for the LEED Green Associate exam.

**Prerequisites:** CET 1150 with a minimum grade of D- and CET 1250 with a minimum grade of D-

**Term Offered:** Spring

**CET 3120 Advanced Construction Materials**

[3 credit hours]

This course focuses on the design and construction of ground based structures such as flexible and rigid pavements, floor slabs and buried pipe loading. Coverage of the construction and preparation of soil is also covered in order to provide a quality subgrade upon which to construct the items. Standard industry manuals and procedures are used to complete design problems.

**Prerequisites:** (CET 2220 with a minimum grade of D- and CET 2110 with a minimum grade of D-)

**Term Offered:** Spring

**CET 3160 Contracts and Specifications**

[3 credit hours]

This course includes the review and understanding of construction contract documents and relationship of drawings, specifications, scheduling, and contracts. This course also includes the review and dissemination of construction specifications for purposes of defining scopes of work.

**Prerequisites:** CET 1100 with a minimum grade of D- and CET 1150 with a minimum grade of D- and (ENGL 1130 with a minimum grade of D- or ENGL 2950 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**CET 3210 Surveying Applications**

[0-3 credit hours]

This course covers the study of surveys for construction layout and mapping, including traverses, horizontal and vertical curves and boundaries. The laboratory stresses the organization of projects under actual field conditions using total stations and data collectors. Hand and computer solutions will be used to solve field problems.

**Prerequisites:** CET 1210 with a minimum grade of D-

**Term Offered:** Fall

**CET 3220 Hydrology And Hydraulics**

[3 credit hours]

This course is designed to give an understanding of basic hydraulic principles as they pertain to stormwater management; from estimating runoff volumes, to channeling the stormwater in conduits and open channels, to detaining flows to reduce downstream flooding and reducing the effects of erosion due to concentrated stormwater flow. The course will utilize numerous methods including manual and computer-aided design tools.

**Prerequisites:** CET 2030 with a minimum grade of D-

**Term Offered:** Spring

**CET 4250 Advanced Structural Design**

[4 credit hours]

This course deals with the design of reinforced concrete structural elements as well the principles of masonry design in accordance with applicable standards and codes. The design of temporary structures for use during construction will also be introduced.

**Prerequisites:** CET 2250 with a minimum grade of D-

**Term Offered:** Fall

**CET 4350 Soils, Foundations And Earth Structures**

[3 credit hours]

This course covers the application of advanced soil mechanics topics which allow for proper design and analysis of foundations. Bearing capacity, shallow and deep foundations (both piles and drilled shafts) as well as soil settlement and slope stability are emphasized. Retaining wall design is also covered.

**Prerequisites:** (CET 2250 with a minimum grade of D- and CET 2220 with a minimum grade of D-)

**Term Offered:** Spring

**CET 4460 Construction Management And Scheduling**

[3 credit hours]

The course focuses on learning the basics of producing construction schedules based on cost estimates and work breakdown structures. Different scheduling methods will be investigated along with associated management techniques needed to plan, track, control and adjust schedules to project conditions.

**Prerequisites:** CET 2060 with a minimum grade of D- and CET 3160 with a minimum grade of D-

**Term Offered:** Spring, Fall

## Counseling (COUN)

**COUN 1110 Fundamentals Of Human Mental Health**

[4 credit hours]

An introduction to the field of human services, especially mental health, history and current trends in treatment and prevention of disease and the basic skills common to the field. Students will learn skills at the demonstrable level as they will later be used in the field.

**Term Offered:** Spring, Fall

**COUN 1240 Substance Abuse Issues In Mental Health**

[3 credit hours]

An overview and survey of addictive disorders, use and abuse, and the personal and cultural effects of chemical dependency.

**Term Offered:** Spring, Fall

**COUN 2120 Group And Therapeutic Approaches**

[4 credit hours]

A study of various types of groups and activity skills used in mental health environments both inpatient and community based. Focus on design, principles, procedures and applications of various techniques.

**Term Offered:** Fall

**COUN 2220 Family Theories And Cultural Influences In Mental Health**

[3 credit hours]

Study of basic family systems and structures and the influences of cultural patterns as they interact and impact the mental health and therapeutic needs of individual family members.

**Term Offered:** Spring

**COUN 3000 Cultural Competence in Health and Human Services Professions**

[3 credit hours]

This course provides an introduction to multicultural helping in the health and human services professions. The influence of socio-identities (e.g., race, ethnicity, religion, gender, socioeconomic status, sexual orientation, ability) on individuals' functioning, concerns, and the helping process will be explored in the context of health and human service professions.

**Term Offered:** Spring, Summer, Fall

**COUN 3110 Case Management In Mental Health**

[3 credit hours]

The study of and practice of using case management models and skills with clients within the mental health environment. Models appropriate for different agency types will be explored and the various modalities available will be introduced.

**Term Offered:** Spring

**COUN 3140 Substance Abuse Prevention And Community Programming**

[3 credit hours]

An evaluation of prevention programs and community resources available in the prevention and treatment of substance abuse.

**Term Offered:** Fall

**COUN 3150 Models Of Treatment For Substance Abuse**

[3 credit hours]

A review of the various components of substance abuse and philosophies of treatment. Theories of etiology and maintenance are also addressed.

**Term Offered:** Spring

**COUN 3220 Theories in Mental Health**

[3 credit hours]

Overview of current approaches of psychological theory. This course includes an examination of the basic issues in mental health, including ethical issues and personal implications for the mental health professional.

**Term Offered:** Fall

**COUN 3380 College Student Leadership Development I**

[1-3 credit hours]

First semester in development of skills for student leaders through didactic experience, simulation exercises and practicum experiences. Especially designed for student government leaders and peer counselor/advisers.

**Term Offered:** Fall

**COUN 3390 College Student Leadership Development II**

[1-3 credit hours]

Second semester in student leadership training. The development of skills for student leaders through didactic experience, simulation exercises and practicum experiences. Especially designed for student government leaders and peer counselor/advisers.

**Prerequisites:** COUN 3380 with a minimum grade of D- or CMHS 3380 with a minimum grade of D-

**Term Offered:** Spring

**COUN 4080 Essentials Of Helping Relationships**

[3 credit hours]

Emphasis upon skills, concepts and practices in the helping professions. Multicultural and ethical issues along with dealing with crisis situations will be covered.

**COUN 4240 Substance Abuse Treatment Techniques**

[3 credit hours]

An examination of ethical and legal issues in substance abuse, as well as examination of the specific skills needed by workers in substance abuse programs.

**Term Offered:** Spring

# Criminal Justice (CRIM)

## CRIM 1010 Criminal Justice

[3 credit hours]

The overall history, philosophy and functioning of the criminal justice system in the U.S. The integrated roles of law enforcement, the courts and corrections will be analyzed and discussed.

**Term Offered:** Spring, Fall

## CRIM 1040 HUMAN RELATIONS AND DIVERSITY IN CRIMINAL JUSTICE

[3 credit hours]

This class will focus on human relations and cultural diversity faced by the criminal justice system, including the police, courts, corrections, and community organizations, and the course will explore general principles in effective human relations, the importance of diversity, and their application in the field of criminal justice.

**Term Offered:** Spring, Fall

## CRIM 1110 Penology

[3 credit hours]

The study of jails, prisons and other types of specialized correctional institutions. The philosophy of incarceration along with the administration, staffing and operations of these facilities will be reviewed.

**Term Offered:** Spring, Fall

## CRIM 1240 Policing

[3 credit hours]

Introduction to law enforcement practices and agencies in the United States, including the history, philosophy and operation of federal, state and local enforcement agencies.

**Term Offered:** Spring, Fall

## CRIM 2050 Applied Criminology

[3 credit hours]

This course examines the theoretical causes of crime in relation to the duties and responsibilities of polices and corrections personnel, and the development of criminal justice polices.

**Term Offered:** Spring, Summer, Fall

## CRIM 2200 Criminal Law

[3 credit hours]

The statutes of Ohio relating to crime and the elements necessary for establishing and providing proof of crimes are studied.

**Prerequisites:** CRIM 1010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

## CRIM 2210 Criminal Investigation I

[3 credit hours]

Introduction to the processes, theories and principles of criminal investigation. Methods of gathering information, report writing, interview/interview strategies, surveillance, search warrant information, affidavit preparation and execution are studied.

**Prerequisites:** CRIM 1010 with a minimum grade of D-

**Term Offered:** Fall

## CRIM 2220 Laws Of Evidence

[3 credit hours]

A thorough study of the evidence rules with specific emphasis on the application of these rules in preparing and presenting evidence.

**Prerequisites:** CRIM 1010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

## CRIM 2230 Criminal Procedure

[3 credit hours]

An examination of the Bill of Rights of the U.S. Constitution as it appears to arrest, search, seizure, detention, interviews, and interrogations.

**Term Offered:** Spring, Summer, Fall

## CRIM 2250 Juvenile Justice

[3 credit hours]

To analyze the causes of juvenile delinquency and the extent of the problem in the U.S. Also, to discuss the inter-workings of the juvenile justice system in response to the delinquency problem, in conjunction with delinquency prevention programs.

**Term Offered:** Spring, Summer, Fall

## CRIM 2990 Independent Study

[1-6 credit hours]

Supervised independent study.

**Term Offered:** Spring, Fall

## CRIM 3110 Hate Crimes

[3 credit hours]

The course examines the genesis, development, theory and practice of hate crimes and how society has and can respond to hate crimes.

**Term Offered:** Summer, Fall

## CRIM 3210 Applied Psychology for Criminal Justice Personnel

[3 credit hours]

This course overviews mental disorders and substance abuse problems common to persons entering the criminal justice system. Related social policies and criminal justice practices are critically examined.

**Term Offered:** Spring, Summer, Fall

## CRIM 3240 Victimology

[3 credit hours]

This course examines the history of victimology and includes topics such as the characteristics of crime victims and specific types of victimization such as hate crimes and sexual assault.

**Prerequisites:** CRIM 1010 with a minimum grade of D-

**Term Offered:** Summer, Fall

## CRIM 3250 Women and Crime

[3 credit hours]

This course will explore the causes and social consequences of crimes by and against women. The course will expose students to feminist theory and examine the interlocking effects of gender, race and class.

**Term Offered:** Spring, Summer, Fall

## CRIM 3290 Criminal Investigation II

[3 credit hours]

An introduction to the crime scene, including methods of searching, photography, sketching and gathering of physical evidence. Fingerprint analysis. Methods utilized in drug investigations and development of information sources are studied.

**Prerequisites:** CRIM 2210 with a minimum grade of D-

**Term Offered:** Spring

## CRIM 3300 Sex Crimes

[3 credit hours]

Overview of a variety of sex crimes, characteristics of sexual predators, theories to explain sex crimes, and current legislation and treatment efforts utilized today to combat sex crimes.

**CRIM 4000 Narcotics Policy and Enforcement**

[3 credit hours]

This course will explore the “War on Drugs” from a historical, pharmacological, economic, political, and practical perspective.

**Term Offered:** Spring, Summer**CRIM 4010 Probation and Parole**

[3 credit hours]

An introduction to the history and dynamics of probation and parole, how they interact within the criminal justice system, and the effective treatment of offender clients.

**Term Offered:** Spring**CRIM 4100 Criminal Justice Research Methods**

[3 credit hours]

This course provides students with an understanding of criminal justice research, the concepts and logic of research designs and widely used statistical procedures.

**Term Offered:** Spring, Summer, Fall**CRIM 4200 Ethics In Criminal Justice**

[3 credit hours]

This course is designed to provide students with an opportunity to integrate ethics in their understanding of criminal justice.

**Term Offered:** Spring, Summer, Fall**CRIM 4410 Criminal Forensic and Trial Practice**

[3 credit hours]

This cross-listed capstone course will allow students to step out of the traditional classroom setting and participate in an applied skills course that will benefit them in the real world of Criminal Justice. Students will be presented with a case and will be responsible for the various stages of the investigative process as well as the trial process.

**Prerequisites:** CRIM 2210 with a minimum grade of D- and CRIM 3290 with a minimum grade of D-

**CRIM 4450 Administration Of Police Services**

[3 credit hours]

The application of management principles to municipal police departments, emphasizing the resources, constraints and strategies of police managers.

**Term Offered:** Spring, Summer, Fall**CRIM 4490 Current Topics-Crim**

[3 credit hours]

Examination of selected current issues in criminal justice that impact our knowledge and understanding of the field.

**Term Offered:** Spring, Summer, Fall**CRIM 4520 Police And Society**

[3 credit hours]

An examination of the role of the police in contemporary America, emphasizing the ambivalence of the self-image of the police and the social and political forces that compete to redefine police function.

**Term Offered:** Spring, Summer, Fall**CRIM 4590 Administration Of Criminal Justice**

[3 credit hours]

A research-oriented course into the relationship of the major structures of criminal justice-police, prosecutor, courts and corrections with emphasis on the development of performance evaluation criteria.

**Term Offered:** Spring, Fall**CRIM 4940 Criminal Justice Internships**

[3-12 credit hours]

Field placement experience within a criminal justice agency to enhance the student's practical knowledge of the field in conjunction with career planning opportunities.

**Term Offered:** Spring, Summer, Fall**CRIM 4990 Independent Study In Criminal Justice**

[1-3 credit hours]

Individual course of study in a selected topic pertaining to Criminal Justice chosen by the student, with the consent of the instructor.

**Term Offered:** Spring, Summer, Fall

## Curriculum and Instruction Early Childhood (CIEC)

**CIEC 3200 Early Childhood Education: Philosophy And Practice**

[3 credit hours]

The course emphasizes the role, attitude and characteristics of the effective teacher of young children.

**Term Offered:** Spring, Summer, Fall**CIEC 3350 Child, Family & Public Policy In Early Childhood**

[3 credit hours]

This course is designed to establish awareness of public policy issues and advocacy techniques, knowledge of family systems, effective home/school communication and collaborative procedures.

**Term Offered:** Spring, Summer, Fall**CIEC 3380 Practicum I**

[1 credit hour]

This course is designed to explore the socio-cultural context of the school, family and community as important influences in learning. Students will be assigned to work with a family, gather data and information about their field sites and attend IEP and IFSP conferences.

**Prerequisites:** Upper Division with a score of 1**Corequisites:** CIEC 4070**Term Offered:** Fall**CIEC 3700 Early Literacy, Language, and Social Studies**

[9 credit hours]

This 9 semester-hour course is required for the "Fast-Track" non-licensure program in Early Childhood Education and provides an integrated study of social studies and literacy development and instructional practices in early childhood education.

**Prerequisites:** CIEC 3600 with a minimum grade of C and CIEC 3610 with a minimum grade of C

**Corequisites:** CIEC 3710**Term Offered:** Spring**CIEC 3710 Field Early Literacy, Language and Social Studies**

[7 credit hours]

Students complete 280 clock hours of field experience in their ECE setting that focuses on their ability to design, manage and evaluate learning environments and activities related to the learning of the literacy and social studies for young children. This field experience is part of the non-licensure "Fast-Track" ECE program.

**Prerequisites:** CIEC 3600 with a minimum grade of C and CIEC 3610 with a minimum grade of C

**Corequisites:** CIEC 3700**Term Offered:** Spring

**CIEC 4070 Effective Teaching Practices, Pre-K To 3rd Grade**

[3 credit hours]

This course is designed to apply characteristics of best practice to curriculum development and implementation with adherence to the national and state curriculum standards as they apply to children, age 3 to 8, with diverse educational needs.

**Prerequisites:** Upper Division with a score of 1 and CIEC 3200 with a minimum grade of C and CIEC 4340 with a minimum grade of C

**Corequisites:** CIEC 3380

**Term Offered:** Spring, Fall

**CIEC 4340 Infant/Toddler Curriculum**

[3 credit hours]

Sequential development of the young child from birth to 3 years. Taken in conjunction with placement in early childhood setting, permitting opportunities to participate in the caregiving of infants/toddlers.

**Term Offered:** Spring, Summer, Fall

**CIEC 4460 Science Methods For Early Childhood Education**

[3 credit hours]

This course is designed to help teachers of science in grades Pre-Kindergarten through third to understand the concepts, ideas and applications of science in the real world. Students will learn how scientific thinking involves collecting data, analyzing data, making decisions and taking action based on those decisions. Students will learn how to plan effective science experience for young children that cause them to explore environments and act upon their discoveries. Students will learn how to assess the scientific thinking of young children appropriately, using formal and informal strategies.

**Corequisites:** CIEC 4480

**Term Offered:** Spring, Fall

**CIEC 4480 Practicum II**

[1 credit hour]

This course aligns with all Cohort I coursework in the undergraduate Early Childhood Teacher Licensure Program.

**Prerequisites:** Upper Division with a score of 1 and CIEC 3380 with a minimum grade of C

**Corequisites:** CIEC 4460

**Term Offered:** Spring

**CIEC 4550 Teaching Methods For Early Childhood Social Studies**

[3 credit hours]

In depth study of methods and materials for teaching social studies from pre-school to third grade. Implementation of early childhood curriculum with the context of current technology and the development of critical thinking skills.

**Prerequisites:** (CIEC 3200 with a minimum grade of C and EDP 3210 with a minimum grade of C)

**Term Offered:** Spring, Fall

**CIEC 4750 Developmental Assessment In Early Childhood**

[3 credit hours]

This course focuses on methods of assessment in early childhood classrooms. Issues covered include methods of observation, interpreting formal assessment results and using information gained from assessment to plan curriculum.

**Term Offered:** Spring, Fall

**CIEC 4770 Practicum III**

[1 credit hour]

Practicum experience in primary grade settings (grades K-3) where students will observe, plan, implement and evaluate activities.

**Prerequisites:** CIEC 4480 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CIEC 4550

**Term Offered:** Fall

**CIEC 4900 Internship/Student Teaching Seminar**

[3 credit hours]

A seminar designed to reflect on the student teaching experience and to enhance the student teacher's final preparation for employment.

Professional issues, ethical behavior, resume and interview techniques and other processes and professional entry concerns. For early childhood student teachers.

**Prerequisites:** Upper Division with a score of 1

**Corequisites:** CIEC 4930

**Term Offered:** Spring, Fall

**CIEC 4930 Internship/Student Teaching in Primary Education**

[9 credit hours]

Planned experience in public school classrooms under direction of University supervisor. Observation of teaching of experienced teacher; gradual acceptance of full responsibility by student teacher for planning, instruction, evaluation and related duties.

**Prerequisites:** Upper Division with a score of 1 and CIEC 4770 with a minimum grade of C

**Corequisites:** CIEC 4900

**Term Offered:** Spring, Fall

**CIEC 4980 Special Topics In Early Childhood Education**

[1-5 credit hours]

Topics of interest and concern to preservice, inservice and non-degree teachers within districts and community agencies served by the Center for Educational Development. May be included in an undergraduate degree program.

**Term Offered:** Spring, Fall

**CIEC 4990 Undergraduate Independent Study In Early Childhood Education**

[1-5 credit hours]

Individual study designed to provide a student the opportunity to work individually on professional problems under the direction of the Early Childhood faculty.

**Term Offered:** Spring, Fall

## Curriculum and Instruction (CI)

**CI 3400 Foundations of Literacy**

[3 credit hours]

An introduction to contemporary literacy instruction to (a) develop a deep understanding of the central role literacy plays in education, (b) understand the theoretical and evidence-based foundations of reading and writing processes and instruction and, (c) develop awareness, understanding, respect, and a valuing of differences in our society as they relate to literacy instruction. Issues related specifically to the needs of English Language Learners and learners with dyslexia introduced.

**Term Offered:** Spring, Summer, Fall

**CI 3430 Phonics And Word Identification**

[3 credit hours]

Phonological and morphological underpinnings of English spelling, reading disabilities such as dyslexia, sound awareness in spoken language examined—instructional approaches for assessing and teaching phonics, word recognition, and vocabulary introduced. Extensive use of case study data included. The course will examine current evidence-based literacy practices that align with the Science of Reading.

**Prerequisites:** CI 3400 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**CI 3460 Literacy And Reading Development For Young Children**

[3 credit hours]

An examination of professional standards for literacy/language arts with specific attention to diverse learners preK through grade 3. Developmentally-appropriate classroom design and methods including Readers' and Writers' Workshop, Guided Reading, Interactive Read Alouds, Interactive Writing, and Integrated Inquiry. Attention to instructional and cognitive strategies as well as reading-writing connections and oral language development.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Spring, Fall

**CI 4050 Teaching Methods in Middle Grades English Language Arts**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching middle grades English Language Arts.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4320 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring

**CI 4060 Teaching Methods in Middle Grades Mathematics**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching middle mathematics.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4320 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring

**CI 4070 Teaching Methods in Middle Grades Science**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching middle grades science.

**Prerequisites:** CI 4190 with a minimum grade of D- and CI 4680 with a minimum grade of D- and Upper Division with a score of 1 and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring

**CI 4080 Teaching Methods in Middle Grades Social Studies**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching middle grades social studies.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4720 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring

**CI 4110 Developing Instruction for Middle Grades 4-5 Literacy and Social Studies**

[3 credit hours]

A course in pedagogy and content for pre-service teachers currently working on Ohio's Early Childhood PK-3 licensure program and licensed teachers who have completed Ohio's Early Childhood PK-3 licensure program and are seeking to extend their license to be eligible to teach all content in grades four and five. The course will focus on the English language arts and social studies as outlined in the Ohio Academic Content Standards.

**Term Offered:** Spring, Fall

**CI 4120 Developing Instruction in Mathematics and Science for Grades 4-5**

[3 credit hours]

A course in pedagogy and content for pre-service teachers currently working on Ohio's Early Childhood PK-3 licensure program and licensed teachers who have completed Ohio's Early Childhood PK-3 licensure program and are seeking to extend their license to be eligible to teach all content in grades four and five. The course will focus on mathematics and science as outlined in the Ohio Academic Content Standards.

**Term Offered:** Spring, Fall

**CI 4140 Teaching Methods For Foreign Languages**

[3 credit hours]

Consideration of current theory and practice in teaching foreign languages in elementary and secondary schools. Focus on planning instruction, materials selection and methods for teaching communication skills and culture.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Spring, Fall

**CI 4150 Methods of Teaching AYA English Language Arts**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching English Language Arts at the secondary level.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4320 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring, Fall

**CI 4160 Methods of Teaching AYA Mathematics**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching mathematics at the secondary level.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4550 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring, Fall

**CI 4170 Methods of Teaching AYA Science**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching science at the secondary level.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4680 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring, Fall



**CI 4180 Methods of Teaching AYA Social Studies**

[3 credit hours]

In-depth study of the methods, standards and materials for teaching social studies at the secondary level.

**Prerequisites:** CI 4190 with a minimum grade of C and CI 4720 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4290

**Term Offered:** Spring, Fall

**CI 4190 Practicum I**

[1 credit hour]

Teacher candidates will be immersed in a classroom studying the student as a learner of content and the classroom as community. Teacher candidate will co-teach lessons and independently teach two or more lessons.

**Prerequisites:** (CI 4320 (may be taken concurrently) or CI 4680 (may be taken concurrently) or CI 4720 (may be taken concurrently) or CI 4550 (may be taken concurrently)) and Upper Division with a score of 1

**Term Offered:** Spring, Fall

**CI 4210 Advanced Teaching Methods in Middle Grades English Language Arts**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in middle grades English language arts.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4050 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Fall

**CI 4220 Advanced Teaching Methods in Middle Grades Mathematics**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in middle mathematics.

**Prerequisites:** CI 4060 with a minimum grade of C and CI 4290 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Fall

**CI 4230 Advanced Teaching Methods in Middle Grades Science**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in middle science.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4070 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Fall

**CI 4240 Advanced Teaching Methods in Middle Grades Social Studies**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in middle grades social studies.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4080 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Fall

**CI 4250 Advanced Methods of Teaching AYA English Language Arts**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in secondary English language arts.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4150 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Spring, Fall

**CI 4260 Advanced Methods of Teaching AYA Mathematics**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in secondary mathematics.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4160 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Spring, Fall

**CI 4270 Advanced Methods of Teaching AYA Science**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in secondary science.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4170 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Spring, Fall

**CI 4280 Advanced Methods of Teaching AYA Social Studies**

[3 credit hours]

The focus of this course is advanced planning and methods with special attention placed on the varied needs of students, disciplinary specific assessment, and related current issues in secondary social studies.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4180 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4390

**Term Offered:** Spring, Fall

**CI 4290 Practicum II**

[1 credit hour]

Teacher candidates will continue field placement studying the role of the teacher and community in learning as well as a variety of students. Teacher candidate will co-teach lessons and independently teach two small units of study.

**Prerequisites:** CI 4190 with a minimum grade of C and Upper Division with a score of 1 and (CI 4050 (may be taken concurrently) or CI 4060 (may be taken concurrently) or CI 4070 (may be taken concurrently) or CI 4080 (may be taken concurrently) or CI 4150 (may be taken concurrently) or CI 4160 (may be taken concurrently) or CI 4170 (may be taken concurrently) or CI 4180 (may be taken concurrently))

**Term Offered:** Spring

**CI 4300 Literature For Children**

[3 credit hours]

Emphasis on all genres of literature for children, including poetry, traditional literature, fantasy, realistic fiction, biography and other information books, particularly for early childhood and middle grades learners. Instructional strategies for engaging learners with children's literature and ways of increasing home-school connections through use of children's literature also introduced.

**Term Offered:** Spring**CI 4320 Literature For Young Adults**

[3 credit hours]

Survey of literature materials written for the junior and senior high school student. Emphasis is placed on all genres, literary elements and the use of literature across the curriculum.

**Prerequisites:** Upper Division with a score of 1 and CI 4190 (may be taken concurrently)**Term Offered:** Spring, Fall**CI 4390 Practicum III**

[1 credit hour]

Candidate will be placed in their student teaching site(s) and focus on developing and teaching instructional unit(s) in their licensure area(s) with a focus on the role of assessment throughout the planning-teaching-reflection process.

**Prerequisites:** CI 4290 with a minimum grade of C and Upper Division with a score of 1 and (CI 4210 (may be taken concurrently) or CI 4220 (may be taken concurrently) or CI 4230 (may be taken concurrently) or CI 4240 (may be taken concurrently) or CI 4250 (may be taken concurrently) or CI 4260 (may be taken concurrently) or CI 4270 (may be taken concurrently) or CI 4280 (may be taken concurrently))**Term Offered:** Fall**CI 4400 Reading In Middle Grades**

[3 credit hours]

Using various genres of literature, students focus on instructional approaches across the curriculum for supporting middle grades students to become literate in multiple subject domains. Teaching methods to support comprehension of text-based content-area materials and writing across the curriculum emphasized. Attention to instructional and cognitive strategies as well as reading-writing connections and oral language development.

**Prerequisites:** Upper Division with a score of 1**Term Offered:** Spring, Fall**CI 4470 Literacy Assessment and Remediation**

[3 credit hours]

Examine current literacy practices in assessment and remediation. Emphasis on knowledge and skill needed to diagnose and assess students in reading and writing by working with an at-risk learner in a public school setting. Apply word identification, comprehension, fluency, vocabulary and writing instructional strategies for supporting readers in an experiential learning environment.

**Prerequisites:** CI 3430 with a minimum grade of D- or CI 3440 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**CI 4490 Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Education Teach**

[3 credit hours]

Study of the integration of reading comprehension, writing, oral language and word skill development in content reading. Attention will be given to instructional methods as well as assessment practices.

**Term Offered:** Spring, Summer, Fall**CI 4510 Mathematics For The Young Child**

[3 credit hours]

Development of mathematical understanding in young children, appropriate learning and assessment experiences and analysis of curriculum. Mathematical focus on place value, number sense, geometry, measurement, algebra, data analysis and probability.

**Prerequisites:** Upper Division with a score of 1**Term Offered:** Spring, Fall**CI 4550 Teaching Problem Solving In Mathematics**

[3 credit hours]

Focuses on the art of problem solving and its implementation in the classroom. Basic problem solving strategies are developed; materials and methods for their integration in mathematics teaching are provided.

**Prerequisites:** Upper Division with a score of 1 and CI 4190 (may be taken concurrently)**Term Offered:** Fall**CI 4680 The Nature of Science**

[3 credit hours]

This course focuses on nature of science education as to teaching science and is designed for pre-service teachers.

**Prerequisites:** CI 4190 (may be taken concurrently) and Upper Division with a score of 1**Term Offered:** Spring, Fall**CI 4720 Best Practices for Teaching Social Studies**

[3 credit hours]

An introduction to lesson planning, pedagogy, and how these principles relate to the Social Studies classroom.

**Prerequisites:** Upper Division with a score of 1 and CI 4190 (may be taken concurrently)**Term Offered:** Spring, Fall**CI 4730 Seminar Managing the English Language Arts Classroom**

[3 credit hours]

A professional teaching and reflection seminar that places internship experience in the context of issues in English language arts education including Ohio mandates for practicing teachers, classroom management, diverse learners and learning environments, and professional portfolio development.

**Prerequisites:** CI 4390 with a minimum grade of C and CI 4250 with a minimum grade of C and Upper Division with a score of 1**Corequisites:** CI 4930**Term Offered:** Spring

**CI 4740 Seminar: Managing the Mathematics Classroom**

[3 credit hours]

A professional teaching and reflection seminar that places internship experience in the context of issues in mathematics education including Ohio mandates for practicing teachers, classroom management, diverse learners and learning environments, and professional portfolio development.

**Prerequisites:** CI 4290 with a minimum grade of C and CI 4260 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4930

**Term Offered:** Spring

**CI 4760 Seminar: Managing the Science Classroom**

[3 credit hours]

A professional teaching and reflection seminar that places internship experience in the context of issues in science education including Ohio mandates for practicing teachers, classroom management, diverse learners and learning environments, and professional portfolio development.

**Prerequisites:** CI 4390 with a minimum grade of C and CI 4270 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4930

**Term Offered:** Spring

**CI 4790 Seminar: Managing the Social Studies Classroom**

[3 credit hours]

A professional teaching and reflection seminar that places internship experience in the context of issues in Social Studies education including Ohio mandates for practicing teachers, classroom management, diverse learners and learning environments, and professional portfolio development.

**Prerequisites:** Upper Division with a score of 1 and CI 4390 with a minimum grade of C and CI 4280 with a minimum grade of C and Upper Division with a score of 1

**Corequisites:** CI 4930

**Term Offered:** Spring

**CI 4930 Internship/Student Teaching**

[9 credit hours]

Full-time supervised classroom teaching for 15 weeks. The candidate will be placed in their student teaching site(s) and will focus on developing and teaching instructional unit(s) with a focus on the role of assessment throughout the planning-teaching-reflection process.

**Prerequisites:** Upper Division with a score of 1 and CI 4390 with a minimum grade of C and (CI 4740 (may be taken concurrently) with a minimum grade of D- or CI 4760 (may be taken concurrently) with a minimum grade of D- or CI 4790 (may be taken concurrently) with a minimum grade of D-)

**Term Offered:** Spring, Fall

**CI 4980 Special Topics In Curriculum And Instruction**

[1-5 credit hours]

Topics of interest and concern to preservice, inservice and non-degree teachers within school districts and community agencies. The course may be included in an undergraduate degree program.

**Term Offered:** Spring, Summer, Fall

**CI 4990 Undergraduate Independent Study In Curriculum And Instruction**

[1-5 credit hours]

Provides student the opportunity to work individually on professional problems under the direction of faculty in Curriculum and Instruction.

**Term Offered:** Spring, Summer, Fall

## Data Analytics (DANN)

**DANN 2000 Proseminar in Data Analytics I**

[1 credit hour]

Students are introduced to the academic and professional nature of the data analytics major. Topics covered include professional socialization, honor theses, portfolio construction, preparation for graduate studies, and career development.

**Term Offered:** Spring, Fall

**DANN 4000 Proseminar in Data Analytics II**

[2 credit hours]

Discussion among faculty and students in the data analytics major with a special focus on the development of a professional portfolio for graduate work or career.

**Prerequisites:** DANN 2000 with a minimum grade of D-

**Term Offered:** Spring, Fall

**DANN 4940 Data Analytics Internship**

[1-4 credit hours]

A prearranged work-study experiential learning course where students gain practical experience applying their data analytics knowledge with a specific firm, government agency, or nonprofit group.

**Prerequisites:** DANN 2000 (may be taken concurrently) with a minimum grade of D- and (PSY 2100 (may be taken concurrently) with a minimum grade of D- or SOC 3290 (may be taken concurrently) with a minimum grade of D- or GEPL 4420 (may be taken concurrently) with a minimum grade of D- or MATH 2600 (may be taken concurrently) with a minimum grade of D-) and (ECON 2810 (may be taken concurrently) with a minimum grade of D- or GEPL 4110 (may be taken concurrently) with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

## Disability Studies (DST)

**DST 2020 Introduction to Disability Studies**

[3 credit hours]

An overview of the key debates, conversations, and ideas about disability in the United States. This course features perspectives from the social sciences on topics such as activism, representation, society, and culture.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity

**DST 2980 Special Topics in Disability Studies**

[1-4 credit hours]

Special topics in Disability Studies. Topics vary by instructor; may be repeated for credit.

**Term Offered:** Spring, Fall

**DST 3030 Disability Culture**

[3 credit hours]

An interdisciplinary exploration of the history and culture of disability, including the issues of stigmatizing and stereotyping, communication barriers and breakthroughs, educational segregation and mainstreaming and the experience of "passing."

**Term Offered:** Spring, Summer, Fall**DST 3040 Disability, Technology, and Society**

[3 credit hours]

Interdisciplinary investigation of the relationship between disability and technology, focusing on the social and political dimensions of designing and using technology with, for, and by disabled people.

**Term Offered:** Spring, Summer, Fall**DST 3060 U.S. Disability History**

[3 credit hours]

This course provides a historical overview of the lived experiences of people defined as disabled and changing historical definitions of disability in the region that became the United States of America. We will consider how major historical forces such as capitalism, industrialization, colonialism, and democratic ideals have impacted and been shaped by people with disabilities.

**Term Offered:** Spring, Fall**DST 3090 Disability in American Literature**

[3 credit hours]

Disability In American Literature addresses a wide range of contemporary literary productions, including novels, graphic novels, plays, short stories, poetry, memoir, and personal essays, connecting these productions to an American literary genealogy and recognizing the deployment and resistance to ableism in American Literature. At the course's conclusion, students will be able to understand how literature interacts with cultural stereotypes, ultimately understanding how literature can be utilized for disability justice and social change.

**Term Offered:** Spring, Summer, Fall**DST 3100 Disability and Chronic Illness**

[3 credit hours]

This course investigates the relationship between chronic illness and disability, asking questions such as: Is chronic illness itself a disability? Does chronic illness cause disability? How do the social and medical models of disability affect our understanding of chronic illness? The course uses interdisciplinary texts (investigative journalism, memoir and literary nonfiction, philosophy, history, political science) to interrogate causes, treatments, cures and non-cures for people living with chronic illness.

**Term Offered:** Spring**DST 3250 Disability and Life Narratives**

[3 credit hours]

This course will examine a diverse selection of disability life narratives and consider what they reveal about disability and the dominant culture.

**Term Offered:** Spring, Fall**DST 3600 Feminist Health Humanities**

[3 credit hours]

This 15-week course will be taught from intersectional, feminist, health humanities perspectives. We will use the arts and culture in combination with humanistic social theory, to examine the following: gendered and racialized health disparities; gendered and racial constructions in the history of science/medicine; illness and disability life writing; biomedical ethics; the feminist health movement; grassroots community health organizing and feminist conceptualizations of wellbeing and radical self-care. Throughout the semester, there will be a sustained emphasis on health justice and the experiences of marginalized communities (women, people of color, the LGBTQ community, people with disabilities, etc.). Participants will leave the course more aware of important discussions in the health humanities and more fully prepared to apply inclusive knowledge practices within majors and career paths involving "health" – broadly defined. The course fulfills core curriculum requirements for Multicultural U.S. Diversity & Writing Across the Curriculum (WAC).

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**DST 3700 Disability and Communication**

[3 credit hours]

In this course we will explore several key communication aspects of disability in society. We will examine the rhetoric of disability, including the ways disability is conceptualized and talked about as well as the growth of disability movements; communication technology and disability; mass media and disability, including the ways the media portray people with disabilities and disability-related issues; and a number of other topics, including interpersonal communication issues around disability.

**Term Offered:** Spring, Fall**DST 3980 Special Topics in Disability Studies**

[1-4 credit hours]

Special topics in Disability Studies. Topics vary by instructor, may be repeated for credit.

**Term Offered:** Spring, Summer, Fall**DST 4000 Global Issues in Disability Studies**

[3 credit hours]

Special focus will be on global and contemporary issues as they arise in changing political and social environments. Geopolitical area of focus may vary based instructor expertise.

**Term Offered:** Fall**DST 4100 Disability and Sexuality**

[3 credit hours]

Utilizing a cultural studies approach, this course investigates complex questions of how someone becomes understood as abnormal in contemporary culture. The course looks at the disability justice and LGBTQA+ justice; trans studies and disability studies; public health and private rights. The course uses interdisciplinary texts including memoir and life writing, philosophy, history, public health and sexuality studies to address questions central to disability justice and lived experience.

**Term Offered:** Spring, Fall**DST 4200 Crip Arts, Crip Culture**

[3 credit hours]

This course explores disability art across media and considers its relationships both with disability culture and with the culture-at-large.

**Term Offered:** Spring

**DST 4300 Disability and Children's Literature - WAC**

[3 credit hours]

Disabled characters and disability themes abound in texts presented to young readers. This course explores the use of disabled characters in a variety of nonfiction and fiction for young through young-adult readers.

**Term Offered:** Spring, Fall**DST 4400 Gender and Disability**

[3 credit hours]

This course examines gender and disability from both theoretical and lived perspectives, particularly as intersecting with other structures of power such as race, nationality, sexuality, and rights. Recommended: DST 2020, DST 3020.

**Term Offered:** Spring**DST 4500 Asylums, Prisons and Total Institutions**

[3 credit hours]

Institutionalization has been a major factor in the daily experiences and understandings of disability in U.S. culture. This course will reevaluate all assumptions about institutions by analyzing when and why these spaces of containment and enclosure, such as prisons and institutions, arise. We will explore how disability and madness are defined, by whom, and for what purposes. The course concludes by analyzing how some ways activists and scholars combat traditional notions of crime, punishment, disability and incarceration.

**Term Offered:** Fall**DST 4640 Disability Law and Human Rights**

[3 credit hours]

Explores the intersections between disability rights and human rights by examining the development, the ideological framework, and the legal contexts of disability law in the U.S. and global contexts. Recommended: DST 2020, 3020, 3030, or 3060.

**Term Offered:** Spring, Fall**DST 4800 Autism and Culture**

[3 credit hours]

This course examines the ongoing construction of autism and the autism spectrum, exploring the many controversies around this remarkable range of human conditions.

**Term Offered:** Spring, Summer, Fall**DST 4940 Internship In Disability Studies**

[3 credit hours]

This course is a service learning model internship with on-campus and/or community agencies addressing disability studies issues. Sites must be approved by the instructor.

**Prerequisites:** DST 2020 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**DST 4950 Independent Study**

[1-4 credit hours]

Students engage in independent research projects with the supervision of a faculty member.

**Term Offered:** Spring, Summer, Fall**DST 4960 Honors Thesis and Capstone Project**

[1-4 credit hours]

Independent study projects for students seeking departmental honors.

**Term Offered:** Spring, Summer, Fall**DST 4980 Special Topics in Disability Studies**

[1-4 credit hours]

Special topics in Disability Studies. Topics vary by instructor; may be repeated for credit.

**Term Offered:** Spring, Fall**DST 4990 Capstone in Disability Studies**

[3 credit hours]

Provides students with an opportunity to engage with professionals and professors in a seminar format for the intensive study of a topic related to Disability Studies. The focus of the seminar will change from year to year.

**Prerequisites:** DST 2020 with a minimum grade of D-**Term Offered:** Spring, Fall

## Economics (ECON)

**ECON 1010 Introduction To Economic Issues**

[3 credit hours]

Basic concepts and theory applications to major economic problems and controversies. Designed primarily to meet requirements of students not planning to take upper level economics courses. (not for major credit)

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

**ECON 1150 Principles Of Macroeconomics**

[3 credit hours]

Explaining the level and the growth of economic activity, its fluctuations and ways of achieving greater stability, including the roles of money, banking and international finance.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

**ECON 1155 Principles of Macroeconomics with Data Applications**

[3 credit hours]

Theoretical explanations on the level and the growth of economic activity, its fluctuations and ways of achieving greater economic stability – complimented by introductory data analysis examining the veracity of predictions by theoretic models. No prior experience using data is necessary for successful completion of this course.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences

**ECON 1200 Principles Of Microeconomics**

[3 credit hours]

Theories of consumer behavior; determination of input and output; prices and quantities in factor and product markets; analysis of international trade and policy; applications include labor markets and income distribution.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

**ECON 2500 Topics In International Economics**

[3 credit hours]

Why nations trade; comparative advantage and gains from trade; free trade versus protectionism; free versus "fair" trade; balance of payments problems.

**ECON 2810 Introduction to Econometrics**

[3 credit hours]

Introduction to econometrics with an emphasis on the intuitive understanding and practical applications of the basic tools of regression analysis. Course covers hypothesis testing, single and multiple regression equations, and the problems and possible solutions to data that are associated with multicollinearity, autocorrelation and heteroskedasticity.

**Prerequisites:** MATH 2600 (may be taken concurrently) with a minimum grade of D- or MATH 3610 (may be taken concurrently) with a minimum grade of D- or BUAD 2060 (may be taken concurrently) with a minimum grade of D- or PSY 2100 (may be taken concurrently) with a minimum grade of D- or SOC 3290 (may be taken concurrently) with a minimum grade of D- or GEPL 4420 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Fall**ECON 3050 Economics Of Gender**

[3 credit hours]

Analysis of labor market outcomes and income distribution characteristics resulting from gender differences; gender-related economic outcomes: the "feminization of poverty," persistent male-female wage differential, expanding proportions of female-headed and same sex households.

**Term Offered:** Spring, Summer, Fall  
Multicultural US Diversity

**ECON 3080 Economics Of Crime**

[3 credit hours]

Study of crime as an economic activity; costs of crime to the community; economic approach to crime reduction.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

**Term Offered:** Spring, Fall**ECON 3120 Topics In Monetary And Financial Economics**

[3 credit hours]

Current issues in money, banking and finance; interest rate theory; international money and banking; monetary policy and modeling monetary economies.

**Prerequisites:** ECON 1150 with a minimum grade of D-

**Term Offered:** Fall**ECON 3150 Intermediate Macroeconomic Theory**

[3 credit hours]

National income accounting; theory of income determination; causal relationships; analysis of consumption, investment, government and foreign demand functions; integration of theories of income, output, money and interest.

**Prerequisites:** ECON 1150 with a minimum grade of D-

**Term Offered:** Spring, Fall**ECON 3200 Intermediate Micro-Economic Theory**

[3 credit hours]

Consumer theory, utility and indifference curve analysis, theory of the firm, industry pricing in perfect and imperfect competition and distribution theory.

**Prerequisites:** ECON 1200 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**ECON 3240 Environmental Economics**

[3 credit hours]

Economic analysis of the causes of environmental problems; Examination of various economic policies for addressing current environmental issues such as pollution control policies and optimal use of resources.

**Term Offered:** Spring, Summer, Fall**ECON 3250 Economics Of Sports**

[3 credit hours]

This course will survey the theoretic and applied economic issues within the world of professional and amateur sports, focusing on industrial organization, labor economics and public finance.

**Prerequisites:** ECON 1200 with a minimum grade of D- or ECON 1150 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**ECON 3260 The Economics of Climate Change**

[3 credit hours]

Climate change can be viewed as a fundamentally economic problem.

However, climate change has a unique set of attributes that make standard economic analysis difficult to apply. It is a global problem requiring unprecedented international cooperation. Economists view climate change as a risk that creates uncertainty about the future.

Students will learn how people value alternative reductions in climate risk. An understating of this trade-off is necessary to help design more cost-effective climate change policy.

**ECON 3270 Natural Resource Economics - WAC**

[3 credit hours]

Economic analysis of natural resource conservation and use, considering the objectives of efficiency and sustainability. Topics include energy, minerals, marine resources, land and agriculture, outdoor recreation, biodiversity and wildlife management.

**Term Offered:** Spring, Summer, Fall**ECON 3300 BENEFIT-COST ANALYSIS**

[3 credit hours]

The study of the evaluation of competing public policy alternatives and projects to more efficiently allocate society's resources. Applications include transportation, public health, criminal justice, education, and the environment.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D- or ECON 3240 with a minimum grade of D- or ECON 3270 with a minimum grade of D-

**Term Offered:** Spring, Fall**ECON 3410 World Economic History**

[3 credit hours]

Study of economic growth throughout the world, particularly in Europe, Asia, Africa and Latin America. Analysis of economic institutions, technological change, industrialization and living standards.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

**ECON 3500 Comparative Economic Systems**

[3 credit hours]

Theory and ideology of market, socialist and mixed economic systems. Case study of the economies of U.S., Russia, China and India.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

**Term Offered:** Spring, Summer  
Multicultural Non-US Diversity

**ECON 3600 Urban Economics**

[3 credit hours]

Analysis bearing on intermetropolitan and intrametropolitan growth processes.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

**ECON 3750 Survey of Health Economics**

[3 credit hours]

Introduction to the economic analysis of health and health care. Topics include medical and allied manpower, hospitals, drugs and economic evaluation of health programs.

**Prerequisites:** ECON 1200 with a minimum grade of D- or ECON 1150 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ECON 3810 Applied Econometrics**

[3 credit hours]

Topics emphasize applications of a wide range of statistical approaches to time-series, cross-sectional, panel, and other types of data. Included are micro-econometric topics such as panel data models, qualitative choice models, hazard models and others. The time series macro-economic topics include model solidarity, cointegration, error correction mechanisms, ARCH and GARCH models, economic forecasting, and others.

**Prerequisites:** ECON 2810 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ECON 3900 Undergraduate Seminar**

[1-4 credit hours]

Small group study of special topics initiated either by student or a faculty member.

**Term Offered:** Spring, Fall

**ECON 3910 Honors Research**

[1-4 credit hours]

Study of special topics initiated either by student or a faculty member.

**Term Offered:** Spring, Fall

**ECON 3920 Honors Reading**

[1-4 credit hours]

Study of special topics initiated either by student or a faculty member.

**Term Offered:** Spring, Fall

**ECON 4050 Population Economics**

[3 credit hours]

Interaction of economic changes and demographic variables; topics include birth rates, women's employment, marriage and divorce, aging and mortality, migration and overpopulation.

**Prerequisites:** (ECON 1150 (may be taken concurrently) with a minimum grade of D- or ECON 1200 (may be taken concurrently) with a minimum grade of D-) and ECON 2810 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring

**ECON 4120 Monetary Theory**

[3 credit hours]

Modern theories of financial markets, money and the theory of interest rates, money's role in general equilibrium and growth models and money's ability to cause inflation.

**Prerequisites:** ECON 3150 with a minimum grade of D-

**Term Offered:** Spring

**ECON 4130 Monetary And Fiscal Policy**

[3 credit hours]

Changes in the quantity of money and alternative government spending, taxation and debt policies, interrelations of fiscal and monetary policies in stabilization programs.

**Prerequisites:** ECON 3150 with a minimum grade of D-

**Term Offered:** Spring

**ECON 4150 Advanced Macroeconomic Theory**

[3 credit hours]

Theories of consumption and investment. Empirical estimates. Cycle and growth theory, multiplier-accelerator analysis and growth models. The theory and instruments of macroeconomic policy. Dynamic Macroeconomic Theory.

**Prerequisites:** ECON 3150 with a minimum grade of D-

**Term Offered:** Fall

**ECON 4200 Advanced Microeconomic Theory**

[3 credit hours]

Advanced topics in microeconomic theory, consumer behavior, the firm and market structure, distribution theory, equilibrium conditions, welfare economics.

**Prerequisites:** ECON 3200 with a minimum grade of D-

**Term Offered:** Fall

**ECON 4240 Applied Environmental Economics**

[3 credit hours]

The economics of the environment and natural resources using applied welfare theory, benefit-cost analyses, and nonmarket valuation. Examination of economic instruments, such as marketable permits, for solving environmental problems.

**Prerequisites:** ECON 1200 with a minimum grade of D- or ECON 3240 with a minimum grade of D- or ECON 3270 with a minimum grade of D-

**Term Offered:** Spring

**ECON 4250 Labor Economics**

[3 credit hours]

The labor market is studied. Topics include labor force characteristics, wage determination, hours and condition of work, human capital models, unemployment, labor union structure and growth, and modern labor legislation.

**Prerequisites:** ECON 1200 (may be taken concurrently) with a minimum grade of D- and ECON 2810 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring

**ECON 4260 Behavioral Economics**

[3 credit hours]

Economic analysis of decisions made by people. Topics include decision-making under risk and uncertainty, strategic decision-making, and experimental economics.

**Prerequisites:** ECON 1200 (may be taken concurrently) with a minimum grade of D- and ECON 2810 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring

**ECON 4280 Energy Economics**

[3 credit hours]

This course explores the theoretical and empirical perspectives on the demand and supply sides of the energy markets. This course starts with an energy outlook in both domestic and global scales. Then it discusses the natural resource modelling, energy supply, and the behavioral underpinnings of the energy demand. The course continues with current and historical aspects of national and global markets for oil, natural gas, coal, electricity, nuclear power, and renewable energy.

**Prerequisites:** ECON 1150 with a minimum grade of D- and ECON 1200 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ECON 4300 Mathematical Economics**

[3 credit hours]

Development and applications of the mathematical tools used by economists. Differential and integral calculus, linear algebra, transcendental functions and series.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

**Term Offered:** Fall

**ECON 4510 International Economics I**

[3 credit hours]

Theory of international trade; commercial policy; costs and benefits, economic integration; trade and economic growth and balance of payments problems.

**Prerequisites:** ECON 1150 with a minimum grade of D-

**Term Offered:** Spring, Summer

**ECON 4550 Economic Development**

[3 credit hours]

Economic problems and policies in less-developed countries, including such topics as schooling, population growth, urbanization, landholding, income distribution, capital formation and development strategies.

**Prerequisites:** ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

**ECON 4620 Regional Economics**

[3 credit hours]

Examination of regional income estimates and social accounts, regional multipliers, diverse location theories, supplemented with techniques of regional analysis.

**Prerequisites:** ECON 1200 with a minimum grade of D-

**ECON 4660 Public Finance Economics**

[3 credit hours]

An analysis of the government sector in the economy, government expenditures, taxation and borrowing and their effects on employment, price levels and growth.

**Prerequisites:** ECON 1200 with a minimum grade of D-

**Term Offered:** Spring

**ECON 4750 Health Economics**

[3 credit hours]

Economic analysis of health and health services. Topics currently include medical and allied manpower, hospitals, drugs and cost-benefit analysis of selected health programs.

**Prerequisites:** ECON 1200 (may be taken concurrently) with a minimum grade of D- and ECON 2810 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring

**ECON 4810 Econometrics Models And Methods I**

[3 credit hours]

An introduction to econometric methods and their use in quantitative analysis of economic theories. Diagnostics for problems typically encountered are detailed along with techniques for correcting these problems.

**Prerequisites:** MATH 2600 with a minimum grade of D- or ECON 2810 with a minimum grade of D- or PSY 2100 with a minimum grade of D- or SOC 3290 with a minimum grade of D- or GEPL 4420 with a minimum grade of D-

**Term Offered:** Fall

**ECON 4820 Econometrics Models And Methods II**

[3 credit hours]

An introduction to forecasting methods for economic time-series including Bayesian methods. Both theory and application of forecasting models and methods are covered.

**Prerequisites:** ECON 4810 with a minimum grade of D-

**Term Offered:** Spring

**ECON 4900 Undergraduate Research Experience**

[0 credit hours]

Undergraduate students will participate in directed research or scholarship activities with faculty mentors.

**Term Offered:** Spring, Summer, Fall

**ECON 4910 Research**

[1-4 credit hours]

**ECON 4920 Readings**

[1-4 credit hours]

**ECON 4940 Economics Internship**

[1-4 credit hours]

A prearranged work-study experiential learning course where students gain practical experience applying their economic knowledge with a specific firm, government agency, or nonprofit group. The course is variable credit from 1 to 4 credits. Each academic credit hour requires 40 hours of internship work, e.g., a 3 credit ECON 4940 course requires 120 hours. ECON 4940 will be graded as "credit/ no credit".

**Prerequisites:** ECON 1150 with a minimum grade of D- and ECON 1200 with a minimum grade of D- and ECON 2810 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ECON 4960 Senior Honors Thesis**

[1-4 credit hours]

## Education (EDU)

**EDU 1000 Orientation To Education**

[1 credit hour]

Academic and student development course offering an introduction to College and University community. Offers strategies for successful transition to University environment by examining University resources, procedures, academic programs and advising.

**Term Offered:** Fall



**EDU 1010 Leadership and Best Practices in Child and Youth Programming**

[3 credit hours]

This course is a practical exploration of the principles, methods, procedures, and skills needed for the development and implementation of child and/or youth programs. Students will be prepared to intern in an established child and/or youth development program upon completion of the course.

**Term Offered:** Spring, Summer, Fall**EDU 1020 Studies in Child and Youth Learning and Development**

[3 credit hours]

This course is an introductory exploration of the content and context associated with an established early childhood and/or youth development program. This course includes practice in modern teaching procedures, construction and use of classroom instructional materials, analysis of the teaching learning process, meeting the needs of diverse learners, classroom supervision, and community relations.

**Prerequisites:** EDU 1010 with a minimum grade of D- or CYS 1010 with a minimum grade of D-**Corequisites:** EDU 1030**Term Offered:** Spring, Summer, Fall**EDU 1030 Practicum in Child Development Centers / Youth Services Forums**

[6 credit hours]

This course is a supervised leadership experience within a child and/or youth development internship program. Students who complete this course are prepared to work with children and/or youth in a variety of educational and non-educational domestic and international settings. Practical field-based assignments encourage students to reflect upon their experience as part of the development of interpersonal, cross-cultural, and leadership skills.

**Prerequisites:** EDU 1010 (may be taken concurrently) with a minimum grade of D- or CYS 1010 (may be taken concurrently) with a minimum grade of D-**Corequisites:** EDU 1020**Term Offered:** Spring, Summer, Fall**EDU 1700 Introduction to Education**

[3 credit hours]

Exploration of purposes of schools in society, focusing on professionalism, standards & accountability, education for democracy, legal & organizational issues, diversity, and curriculum & instruction, as well as knowledge and dispositions required to be an effective teacher.

**Term Offered:** Spring, Fall**EDU 4700 Honors Capstone Practicum**

[1-3 credit hours]

Capstone Practicum is an individualized applied learning experience. Faculty engage in a collaborative mentoring relationship with the student to establish an Honors Capstone Plan. The student assumes responsibility for learning in a self-directed manner without the structure provided by the typical classroom course.

**Term Offered:** Spring, Fall

## Educational Psychology (EDP)

**EDP 3200 Applied Psychology For Teachers**

[3 credit hours]

Examination of the ways in which psychological principles can be applied to the planning and implementation of meaningful instruction in elementary and secondary classrooms.

**Term Offered:** Spring, Summer, Fall**EDP 3210 Child Development For Early Childhood Educators**

[3 credit hours]

Students in early childhood education will be introduced to emotional, social and cognitive factors in child development (birth to age eight) and examine how teachers can create optimal environments for students.

**Term Offered:** Spring, Summer, Fall**EDP 3290 Life Span Development**

[3 credit hours]

This course will examine concepts delineating the physical (including genetic influences), cognitive, social and personality development across the life span. The course is designed to provide a necessary background in the concepts of development as they pertain to a life span orientation for students in special education. An emphasis will be placed on the application of developmental data issues and problems extant in working with special populations.

**Term Offered:** Fall**EDP 4220 Adolescent Behavior And Development**

[3 credit hours]

Examines the physical, cognitive, social, emotional and personality development of adolescents. Provides helping professionals with background to identify and solve problems related to adolescent growth and development.

**Term Offered:** Spring, Summer, Fall**EDP 4240 Classroom Engagement and Behavioral Supports**

[3 credit hours]

The course builds teacher candidate's knowledge of social and emotional development and needs from birth to age 11. Teacher candidates develop skills to develop support positive classroom dynamics, prosocial behaviors and classroom management. The course addresses theory and practical application of current behavioral support approaches as well as the evolution of the field across time. Special attention will be paid to current best practice as it applies to the primary classroom.

**Term Offered:** Spring, Summer, Fall**EDP 4990 Independent Study In Educational Psychology**

[1-3 credit hours]

]Directed study of a current topic in educational psychology. The student meets with the instructor at arranged intervals without formal classes.

**Term Offered:** Spring, Fall

# Educational Technology and Performance Technology (ETPT)

## ETPT 2020 Technology And Multimedia In Educational Environments [3 credit hours]

Emphasizes the development of computing skills with a focus on productivity tools in organizing, managing, multimedia authoring, homepage development, software evaluation and presenting lessons for professional communication in K-12.

**Term Offered:** Spring, Fall

# Electrical Engineering and Computer Science (EECS)

## EECS 1000 Introduction to Electrical Engineering [3 credit hours]

Orientation to the University, college and departmental facilities, procedures and methodologies available to the student for their academic journey. Introduction to fundamental topics in electrical engineering, engineering design and problem solving.

**Term Offered:** Fall

## EECS 1030 Introduction to Computer Science and Engineering [3 credit hours]

Orientation to the University, college and departmental facilities, procedures and methodologies available to the student for their academic journey. Introduction to Computer Science and Engineering, with an emphasis on the fundamentals of computer programming and problem solving.

**Term Offered:** Spring, Summer, Fall

## EECS 1100 Digital Logic Design [4 credit hours]

Number representation and Boolean Algebra. Combinational circuit analysis and design. K-map and tabulation methods. Multiplexers, decoders, adders/subtractors and PLD devices. Sequential circuit analysis and design. Registers, counters and recognizers.

**Term Offered:** Spring, Fall

## EECS 1500 Introduction to Programming [0-3 credit hours]

Covers the concept and properties of an algorithm, analysis and decomposition of computational problems, use of modern programming practices. Introduction to arrays and classes. Uses the C++ language.

**Term Offered:** Spring, Fall

## EECS 1510 Introduction To Object Oriented Programming [4 credit hours]

Introduces the basics of programming using the Java language. Covers number types, objects, methods, control structures, vectors, files, and inheritance. Utilizes the Java platform to develop GUI interfaces.

**Prerequisites:** EECS 1030 with a minimum grade of C-

**Term Offered:** Spring, Fall

## EECS 2000 EECS Professional Development

[1 credit hour]

Preparation for entry to the professions of Electrical Engineering and Computer Science and Engineering, including ethics and social responsibilities, employment practices, continuing education and professional registration.

**Term Offered:** Spring, Fall

## EECS 2110 Computer Architecture and Organization [3 credit hours]

Fundamentals of computer architecture, computer arithmetic, memory systems, interfacing and communication, device subsystems, processor design, cpu organization, assembly programming, performance, distributed models and multiprocessing.

**Prerequisites:** EECS 1100 with a minimum grade of D- and (EECS 1500 with a minimum grade of D- or EECS 1510 with a minimum grade of D-)

**Term Offered:** Spring, Summer

## EECS 2300 Electric Circuits

[0-4 credit hours]

An introduction to electrical circuit components and laws, including ideal op-amps, DC circuit analysis, AC circuit analysis, transient analysis of RL and RC circuits and computer-aided circuit analysis.

**Prerequisites:** PHYS 2140 (may be taken concurrently) with a minimum grade of D- and PHYS 2145 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

## EECS 2340 Electric Circuits For Nonmajors [3 credit hours]

For students not majoring in EECS. An introduction to electrical circuit components and laws, resistive circuit analysis, AC circuit analysis, phasers, three-phase circuits and computer-aided circuit analysis.

**Prerequisites:** PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

## EECS 2500 Linear Data Structures [4 credit hours]

This course looks at stacks, queues, and lists as well as the order of algorithms used to access and modify these structures. In addition recursion, hashing, sorting, and set representation are examined in depth.

**Prerequisites:** EECS 1510 with a minimum grade of C-

**Term Offered:** Spring, Fall

## EECS 2510 Non-Linear Data Structures [4 credit hours]

The data structures introduced in EECS 2500 are extended to include trees (binary, balanced, and n-ary), graphs, and advanced sorting techniques. In addition, the C++ language is used as the main vehicle and is introduced in the course. Students are expected to have a strong background in Java prior to this course.

**Prerequisites:** EECS 2500 with a minimum grade of C- and EECS 2520 (may be taken concurrently) with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**EECS 2520 Discrete Structures**

[3 credit hours]

An introduction to the discrete structures used in computer science to develop software including proof techniques, Boolean logic, graphs, trees, recurrence relations, functions, combinatorics, and number theory.

**Prerequisites:** PHIL 1010 with a minimum grade of D- and EECS 1510 with a minimum grade of C-

**Term Offered:** Spring, Summer

**EECS 3100 Embedded Systems**

[4 credit hours]

Microcontroller interfacing, assembly and C language programming for embedded systems, timer, input/output synchronization; analog to digital conversion, digital to analog conversion, interrupts, and embedded system debugging techniques.

**Prerequisites:** EECS 2110 with a minimum grade of D- and EECS 3210 with a minimum grade of D- and EECS 3400 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**EECS 3150 Data Communications**

[3 credit hours]

Analog and digital data transmission, transmission media, Modulation techniques. Data encoding, asynchronous and synchronous transmissions, USART, RS232-C, RS-449 standards. Data link configuration and control, error control, multiplexing and demultiplexing.

**Prerequisites:** EECS 3210 with a minimum grade of D- or (EECS 2110 with a minimum grade of D- and MATH 2600 with a minimum grade of D-)

**Term Offered:** Summer, Fall

**EECS 3210 Signals and Systems**

[3 credit hours]

Signal and system representation. Convolution and impulse response. Fourier series, Fourier transform and Laplace transform. Discrete-time systems and Z-transforms. Computer simulation using MATLAB.

**Prerequisites:** EECS 2300 with a minimum grade of D- and (EECS 1500 with a minimum grade of D- or EECS 1510 with a minimum grade of D-) and (MATH 1890 with a minimum grade of D- or MATH 2890 with a minimum grade of D-) and (MATH 3860 with a minimum grade of D- or MATH 2860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**EECS 3220 Electric Circuits II**

[3 credit hours]

Advanced topics including three-phase systems, magnetically-coupled systems, resonance and second-order systems, Laplace transform circuit analysis, Fourier series for periodic waveforms and applications to electric circuits, ideal filters, system modeling and two-port networks.

**Prerequisites:** EECS 2300 with a minimum grade of D-

**Corequisites:** EECS 3210

**Term Offered:** Spring, Fall

**EECS 3300 Probabilistic Methods In Engineering**

[3 credit hours]

Techniques for modeling and analysis of random phenomena in EECS, including communication, control and computer systems. Distribution, density and characteristic functions. Computer generation. Functions of random variables.

**Prerequisites:** EECS 3210 with a minimum grade of D-

**Term Offered:** Spring

**EECS 3400 Electronics I**

[0-4 credit hours]

Large-signal and incremental characteristics of the pn diode, BJT, MOSFET and JFET. Large-signal analysis and computer simulation of devices and digital circuits. Logic gate implementation. Laboratory experiments and projects.

**Prerequisites:** EECS 2300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 3420 Electronics II**

[3 credit hours]

Analog transistor, diode and integrated circuit analysis and design. Incremental analysis techniques, frequency response and feedback techniques.

**Prerequisites:** (EECS 3210 with a minimum grade of D- and EECS 3400 with a minimum grade of D-)

**Term Offered:** Summer, Fall

**EECS 3440 Electronics Laboratory**

[1 credit hour]

Laboratory experiments and projects in the testing and design of analog and mixed-signal electronic circuits.

**Prerequisites:** EECS 3420 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 3460 Electrical Energy Conversion**

[3 credit hours]

Traditional and renewable electrical energy sources, principles of electromechanical energy conversion, magnetic circuits and transformers, steady state performance of synchronous machines, dc machines, single phase and three phase induction motors.

**Prerequisites:** EECS 3710 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Summer, Fall

**EECS 3480 Energy Conversion Laboratory**

[1 credit hour]

Laboratory studies of power transformers, synchronous machines, DC machines, single and three phase induction motors.

**Prerequisites:** EECS 3460 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 3540 Operating Systems And Systems Programming**

[3 credit hours]

Examines the external and internal characteristics of computer operating systems and related software. Details of at least one operating system and comparison with other operating systems. An introduction to systems level programming.

**Prerequisites:** EECS 2110 with a minimum grade of D- and EECS 2510 with a minimum grade of D-

**Term Offered:** Spring

**EECS 3550 Software Engineering**

[3 credit hours]

An introduction to the Software Engineering process. Includes: the software lifecycle, user requirements, human-computer interaction, functional specification, software design, software tools, testing and modification. A major term project is assigned.

**Prerequisites:** EECS 2510 with a minimum grade of D- and (ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1130 with a minimum grade of D-)

**Term Offered:** Spring

**EECS 3560 Programming Languages and Paradigms**

[3 credit hours]

Primary constructs of contemporary programming languages, four major programming paradigms (imperative, functional, logical, and object-oriented), representative programming languages of these paradigms and their usages.

**Prerequisites:** EECS 2510 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**EECS 3710 Electromagnetics I**

[3 credit hours]

The nature of electromagnetism, Complex numbers, Transmission lines, Smith chart, Impedance matching, Vector analysis, Coordinate transformations, Electrostatics, Electrical properties of materials, Boundary conditions, Magnetostatics, Magnetic properties of materials, Boundary conditions.

**Prerequisites:** EECS 2300 with a minimum grade of D- and PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 3720 Electromagnetics II**

[3 credit hours]

Maxwell's equations, Boundary conditions for electromagnetics, Plane-wave propagation in lossless and lossy media, Reflection, Transmission, Waveguides, Cavity resonators, Radiation, Antenna radiation characteristics, Antennas, Satellite communication systems, Introduction to CAD tools.

**Prerequisites:** EECS 3710 with a minimum grade of D-

**Term Offered:** Spring

**EECS 3940 Co-Op Experience**

[1 credit hour]

Approved co-op work experience. Course may be repeated.

**Prerequisites:** EECS 2000 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**EECS 3950 Co-Op Experience**

[1 credit hour]

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

**Prerequisites:** EECS 3940 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**EECS 4010 Senior Design Project I**

[1 credit hour]

Student teams select and research a design project and propose a design. Topics covered include entrepreneurship, business plan, technical communications, design process, design teams, standards, ethics, safety and environment, and intellectual property. A fully developed senior design project proposal is required.

**Prerequisites:** EECS 3100 with a minimum grade of D- or EECS 3420 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 4020 Senior Design Project II**

[3 credit hours]

Student teams implement, test and evaluate a design previously proposed in EECS 4010. Written reports on progress and final project are required. Preliminary design and critical design reviews may be performed. Oral presentation and senior design exposition participation are needed.

**Prerequisites:** EECS 4010 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 4050 VLSI and FPGA System Design & Applications**

[3 credit hours]

This course will cover the basic fundamentals of Very Large Scale Integrated (VLSI) systems and Field Programmable Gate Arrays (FPGAs). Topics include: VHDL, CAD Tools, CMOS VLSI Design including design of Adders and Multipliers, FPGA Architecture, Interconnect Delay, Memory Structures, Timing and Clocking, Design for Performance, Custom IC Design including ASICs, Floor Planning, Placement and Routing, and Testing of VLSI circuits and FPGAs

**Prerequisites:** EECS 2110 with a minimum grade of C-

**Term Offered:** Fall

**EECS 4100 Theory of Computation**

[3 credit hours]

Examines formal models of automata and languages. Finite-state automata, regular languages, pushdown automata, context-free languages, Turing machines, decidability, reducibility, and P vs NP complexity classes.

**Prerequisites:** EECS 2510 with a minimum grade of D- and EECS 2520 with a minimum grade of D-

**Term Offered:** Spring

**EECS 4120 Introduction to Fuzzy Systems and Applications**

[3 credit hours]

[3 hours] Introduction to Fuzzy Rule Based Intelligent Systems. Basic Concepts of Fuzzy logic, Fuzzy Sets, Fuzzy Arithmetic, Fuzzy Relations, Fuzzy Graphs, Approximate Reasoning and Fuzzy Implications. Applications in Real World Domains. Prerequisite: EECS 2110.

**Prerequisites:** EECS 2110 with a minimum grade of D-

**EECS 4180 Computer Networks**

[3 credit hours]

ISO/OSI layer models of computer networks. Review of the first two layers. Discussion of network, transport, session, presentation and application layers. Study of LANs and standards. Internetworking, routers and bridges.

**Prerequisites:** EECS 3150 with a minimum grade of D- or EECS 2110 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EECS 4200 Feedback Control Systems**

[3 credit hours]

Feedback methods for the control of dynamic systems. Topics include characteristics and performance of feedback systems, state variable analysis, stability, root locus and frequency response methods and computer simulation.

**Prerequisites:** EECS 3220 with a minimum grade of D-**Term Offered:** Spring**EECS 4220 Programmable Logic Controllers**

[3 credit hours]

An introduction to programmable logic controllers (PLCs), process control algorithms, interfacing of sensors and other I/O devices, simulation and networking.

**Prerequisites:** (EECS 1100 with a minimum grade of D- and EECS 3210 with a minimum grade of D-)**Term Offered:** Spring, Fall**EECS 4240 Power Systems Operation**

[3 credit hours]

Single line diagrams and per unit calculations, network matrices and Y-bus, load flow techniques, large system loss formula, real and reactive power dispatch, power system relays and protection.

**Prerequisites:** EECS 3460 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4260 Control Systems Design**

[3 credit hours]

A general study of computer-aided design of control systems. Topics include: stability, compensation, pole placement, nonlinear systems and digital systems.

**Prerequisites:** EECS 4200 with a minimum grade of D-**Term Offered:** Fall**EECS 4330 Image Analysis And Computer Vision**

[3 credit hours]

Imaging geometry, image filtering, segmentation techniques, image representation and description, stereo vision and depth measurements, texture analysis, dynamic vision and motion analysis, matching and recognition.

**Prerequisites:** EECS 3300 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4360 Communication Systems**

[3 credit hours]

Fourier transform applications in signal analysis and communication. Signals spectra, filtering, AM and FM modulation, noise and optimum receiver, sampling theorem, multiplexing, PCM, introduction to digital modulators and demodulators.

**Prerequisites:** EECS 3300 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4370 Information Theory And Coding**

[3 credit hours]

Coding concepts, Huffman code, entropy analysis, channel and mutual information, channel capacity and Shannon's theorem, algebraic coding theory and application to blockcode and cyclic code, introduction to convolutional code.

**Prerequisites:** EECS 3300 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4380 Digital Signal Processing**

[3 credit hours]

Discrete Fourier Transform (DFT), discrete convolution and correlation, Fast Fourier Transform (FFT) and its applications, design of IIR and FIR digital filters, multirate/channel digital systems, decimation and interpolation.

**Prerequisites:** EECS 3210 with a minimum grade of D-**Term Offered:** Spring**EECS 4390 Wireless And Mobile Networks**

[3 credit hours]

Mobile radio propagation; the cellular concept; multiple radio access; multiple division techniques; channel allocation; mobile communication systems; existing wireless systems; network protocols; AD HOC and sensor networks; wireless LANS and PANS; recent advances.

**Prerequisites:** (EECS 3210 with a minimum grade of D- and EECS 3300 with a minimum grade of D-) or (EECS 3210 with a minimum grade of D- and MIME 4000 with a minimum grade of D-)**Term Offered:** Spring, Fall**EECS 4410 Electro-Optics**

[3 credit hours]

Introduction to laser physics, optics, optical waveguides, optical communication systems and electro-optics. Design of light processing and communication systems will be considered with emphasis on optics and optical communication.

**Prerequisites:** EECS 3710 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4460 Power Systems Management**

[3 credit hours]

An advanced study of the management and operation of today's power system. Included are historical developments, utility and operational costs and economics, power generation alternatives, fuel alternatives, renewable applications, transmission and distribution practices, and a discussion of current power system issues, both in the U.S. and abroad.

**Prerequisites:** EECS 3220 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**EECS 4480 Power Electronics**

[3 credit hours]

Electronic power switching circuits. Half-wave and full-wave rectification. Characteristics of wide bandgap semiconductors. Analysis and design of inverters (dc-ac converters). Isolated and non-isolated dc-dc converters.

**Prerequisites:** EECS 3420 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4500 Programming for the World Wide Web**

[3 credit hours]

Fundamental concepts and programming languages for constructing contemporary websites. Differences and similarities between procedural, object-oriented, and scripting languages. Topics include HTML, Javascript, CSS, XML, Ajax, PHP, ASPnet, Three.js, and related technologies, as well as their impact on the programming process.

**Prerequisites:** EECS 2510 with a minimum grade of D- and EECS 4100 with a minimum grade of D-**Term Offered:** Spring

**EECS 4520 Advanced Systems Programming**

[4 credit hours]

This course examines pertinent concepts of systems programming. Topics covered include: synchronization, distributed programming models, kernel design, peripheral handling, file systems and security history and methods.

**Term Offered:** Spring, Fall**EECS 4530 Computer Graphics I**

[4 credit hours]

An introduction to typical computer graphics systems and their operation. Interactive techniques will be introduced as well as representations and projections of three-dimensional images. Exercises using graphics equipment are assigned.

**Term Offered:** Spring, Fall**EECS 4560 Database Management Systems**

[3 credit hours]

Introduction to Database Systems, Data Modeling, Entity-Relationship Diagrams, The Relational Model, SQL, Relational Algebra, Relational Calculus, Normal Forms (1NF, 2NF, 3NF, BCNF, 4NF, PJNF/5NF), Candidate keys, superkeys, schema decomposition, Functional dependency, Entity and Referential Integrity.

**Prerequisites:** EECS 2510 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4580 Human Computer Interface Design**

[3 credit hours]

[3 hours] The design of human-computer interfaces and their importance to human-computer interaction. Human engineering, implementation techniques, prototyping, and current and future research areas.

**Prerequisite:** EECS 3550**Prerequisites:** EECS 3350 with a minimum grade of D-**Term Offered:** Spring**EECS 4590 Algorithms**

[3 credit hours]

Techniques for devising efficient computer algorithms. Topics include: divide-and-conquer techniques, dynamic programming, linear programming, graph algorithms, greedy algorithms, NP and P complexity classes, and approximation algorithms for NP complete problems.

**Prerequisites:** EECS 2510 with a minimum grade of D and EECS 4100 with a minimum grade of D-**EECS 4600 Solid State Devices**

[0-4 credit hours]

Theory and operation of physical electronic devices. Electrical transport in metals, semiconductors and models of BJT's and FET's. Optoelectronic devices and integrated circuits. Laboratory includes hands-on experimentation with basic semiconductor fabrication processes.

**Prerequisites:** EECS 3400 with a minimum grade of D-**Term Offered:** Fall**EECS 4610 Digital Vlsi Design I: Basic Subsystems**

[4 credit hours]

CMOS process technologies, CMOS logic families, custom and semi-custom design. Subsystem design of adders, counters and multipliers. System design methods and VLSI design tools.

**Prerequisites:** EECS 3400 with a minimum grade of D-**EECS 4640 Inside Cryptography**

[3 credit hours]

Examines the inner workings of several cryptographic algorithms, including the discrete math behind them. Introduces operations in a Galois Field, and covers some Prime Number Theory. Symmetric algorithms include Feistel (DES) and non-Feistel (AES) designs; Asymmetric algorithms include Merkle-Hellman and RSA. Block and stream modes are explored, as are cryptographic hash functions, and ECB and Chained modes of encryption.

**Prerequisites:** EECS 2520 with a minimum grade of D- and EECS 3100 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4720 Fundamentals of Cyber Security**

[3 credit hours]

This course introduces cybersecurity concepts and their relevance to national security, businesses, society, and individuals. Concepts that will be discussed include terminologies, blockchain, cryptocurrency, maths/statistics in the domain, review of various cybersecurity domains, forensics, and methods/practices to secure systems. Additional real-world security problems will be introduced through hands-on experiments.

**Prerequisites:** EECS 2110 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4740 Artificial Intelligence**

[3 credit hours]

This course explores the topic of intelligent software agents with a emphasis on hands-on design of adaptive problem-solving agents for environments of increasing complexity ranging from single-agent computer games to complex real-world multi-agent environments.

**Prerequisites:** EECS 2510 with a minimum grade of D-**Term Offered:** Spring, Fall**EECS 4750 Machine Learning**

[3 credit hours]

This course emphasizes learning algorithms and theory including concept, decision tree, neural network, computational, Bayesian, evolutionary, and reinforcement learning.

**Prerequisites:** (MIME 4000 with a minimum grade of D- and MATH 2890 with a minimum grade of D- and EECS 2110 with a minimum grade of D-)**Term Offered:** Spring, Fall**EECS 4760 Computer Security**

[3 credit hours]

Foundational concepts in Computer Security: The CIA Triad, Authentication, Access Control, Least Privilege, Complete Mediation, Economy of Mechanism, Reference Monitors, Defensive Programming, Threats and Attacks, Network Security, Introduction to Cryptography, Database Security.

**Prerequisites:** EECS 2110 with a minimum grade of D- and EECS 3540 with a minimum grade of D-**Term Offered:** Fall

**EECS 4790 Network Security**

[4 credit hours]

Theory and practice of network security. Topics include firewalls, Windows, UNIX and TCP/IP network security. Security auditing, attacks, viruses, intrusion detection and threat analysis will also be covered.

**Prerequisites:** EECS 4720 with a minimum grade of D- or EECS 5720 with a minimum grade of C

**Term Offered:** Spring

**EECS 4800 Assured and Trusted Digital Microelectronics**

[3 credit hours]

This course will cover the following topics: Assurance and Trust, VHDL, Hardware Security and Trust for Integrated Circuits, Physical Unclonable Functions (PUFs), FPGA Security and Testing, Hardware Obfuscation, Counterfeit Chip Detection, Hardware Trojans, Side Channel Attacks, Hardware Cryptography, Block Chain Technology for IC Supply Chain Protection

**Prerequisites:** EECS 3100 with a minimum grade of C-

**Term Offered:** Spring

**EECS 4980 Special Topics In EECS**

[1-4 credit hours]

Pilot offerings of new courses involving emerging topics of interest are introduced using this number. One credit per lecture/recitation hour and/or 2.5 lab hours per week.

**Term Offered:** Spring, Summer, Fall

**EECS 4990 Independent Study In Eecs**

[1-4 credit hours]

Selected topics in electrical engineering or computer science and engineering. The instructor will specify the scope of the investigation and will meet regularly with the student(s). The study is expected to require an average of 3 hours student effort per week per credit.

**Term Offered:** Spring, Summer, Fall

## Electrical Engineering Technology (EET)

**EET 1010 DC Circuits**

[0-4 credit hours]

This course constitutes an introduction to electrical components, direct current circuit analysis, circuit theorems and basic electrical measurements. An introduction to sinusoidal waveforms, complex numbers, phasors and Pspice is also included.

**Prerequisites:** MATH 1330 (may be taken concurrently) with a minimum grade of D- or MATH 1340 (may be taken concurrently) with a minimum grade of D-

**Corequisites:** MATH 1330

**Term Offered:** Spring, Fall

**EET 1020 AC Circuits**

[4 credit hours]

This course involves transient analysis of first order, reactive DC circuits and steady state analysis of reactive circuits under AC conditions.

Frequency response, three-phase analysis, oscilloscope usage and PSpice simulation methods are included.

**Prerequisites:** EET 1010 with a minimum grade of D- and (MATH 1330 with a minimum grade of D- or MATH 1340 with a minimum grade of D-)

**Term Offered:** Spring

**EET 1410 Electrical Drafting**

[3 credit hours]

Use of electrical and electronic symbols, familiarization with industry standards and codes and familiarization with different kinds of schematics and other electrical drawings. Course work performed on personal computers using CAD software.

**Term Offered:** Spring

**EET 2010 Electronic Principles**

[0-4 credit hours]

Semiconductor devices and applications with emphasis on power supplies and amplifiers. AC/DC analysis of small-signal amplifiers using both bipolar junction and field effect transistors in various biasing configurations.

**Prerequisites:** EET 1020 with a minimum grade of D- and EET 1010 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EET 2020 Electronic Device Applications**

[4 credit hours]

This course covers principles and applications of electronic circuits and devices such as oscillators, power supplies, thyristors regulators and op amps.

**Prerequisites:** EET 2010 with a minimum grade of D- and EET 1010 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EET 2210 Digital Logic Fundamentals**

[0-4 credit hours]

This course covers the fundamentals of digital logic circuits.

Topics include number systems, logic gates, Boolean algebra, logic simplification, Karnaugh maps, adders, multipliers, multiplexers and decoders. Elementary digital circuits including flip-flops, counters, shift registers, memory devices, programmable logic devices and integrated circuits are also covered.

**Prerequisites:** EET 1010 with a minimum grade of D- or EET 2420 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EET 2230 Assembly Language Programming**

[0-4 credit hours]

The study of machine and assembly language programming and circuit and system applications. Microprocessor architecture and organization are also presented.

**Prerequisites:** (EET 2210 with a minimum grade of D- and CSET 1100 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**EET 2410 Mechatronics I**

[0-4 credit hours]

A study of programmable controllers emphasizing program development, logic development and troubleshooting. Emphasis on relays, timers, counters, integer math and scan-dependent programming. Factory floor control concepts are stressed.

**Prerequisites:** EET 2210 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**EET 2420 Electrical Instrumentation Laboratory**

[1 credit hour]

Provides an opportunity for freshman Computer Science and Engineering Technology students to gain laboratory experience with basic electrical instrumentation and basic computer components.

**Term Offered:** Spring, Fall**EET 2980 Special Topics**

[1-4 credit hours]

Student performs work on a specialized project of an advanced nature under the supervision of an Electrical Engineering Technology faculty member.

**Term Offered:** Spring, Summer**EET 3150 C Programming**

[0-4 credit hours]

This course emphasizes C programming. Design of a microcontroller system including hardware, interface, and programming using C is implemented. Lab exercises cover the areas of interrupts, structures and other programming concepts.

**Prerequisites:** EET 2210 with a minimum grade of D-**Term Offered:** Spring, Fall**EET 3250 Network Analysis**

[3 credit hours]

This course consists of analysis of electrical wave-forms and first order time domain circuits, transient analysis of reactive circuits using Laplace transforms, system transfer functions, Bode plots and the interpretations of Fourier series and transforms.

**Prerequisites:** (EET 1010 with a minimum grade of D- and EET 1020 with a minimum grade of D- and ENGT 3020 with a minimum grade of D-)**Term Offered:** Spring, Summer**EET 3350 Embedded Systems Design**

[0-4 credit hours]

This course covers different aspects of real-time embedded systems implementation with low-level access to hardware resources of microcontrollers. Topics include but not limited to low-level and high-level microcontroller programming covering assembly and C, I/O access, interrupt-driven programming, timers, serial interfacing, analog-to-digital (ADC), and digital-to-analog (DAC). Uses system design approach, such as flow charts, finite state machines (FSM) while implementing embedded systems is emphasized.

**Prerequisites:** (EET 2210 with a minimum grade of D- and EET 3150 with a minimum grade of D-) or (EET 2210 with a minimum grade of D- and CSET 2230 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall**EET 4150 Analog Systems Design**

[0-4 credit hours]

This course emphasizes the design and analysis of analog applications including transistor and integrated circuits using computer-aided engineering techniques. Specifically, this includes the design of small signal amplifiers, multistage amplifiers, operational amplifier circuits and power supplies by applying derived equations and scientific concepts.

**Prerequisites:** EET 2020 with a minimum grade of D- and EET 1010 with a minimum grade of D-**Term Offered:** Spring, Fall**EET 4250 Database Applications for Industry**

[4 credit hours]

This course covers fundamentals of database architecture, database management systems, and database systems. Principles and methodologies of database design, and techniques for database application development. It provides needed introductory database fundamentals for Microsoft MS-SQL Server. Applications from industry are included.

**Prerequisites:** EET 3350 with a minimum grade of D-**Term Offered:** Spring, Fall**EET 4300 Motors and Generators**

[0-4 credit hours]

This course constitutes a study of AC-DC machines, including transformers, power transmission and the regulations governing them as specified by industry and the National Electrical Code.

**Prerequisites:** EET 1010 with a minimum grade of D- and EET 1020 with a minimum grade of D- and MATH 2460 with a minimum grade of D-**Term Offered:** Spring**EET 4350 Electric Power Systems**

[0-4 credit hours]

This course constitutes a study of AC-DC machines, including transformers, power transmission and the regulations governing them as specified by industry and the National Electrical Code.

**Prerequisites:** EET 1010 with a minimum grade of D- and EET 1020 with a minimum grade of D- and ENGT 3020 with a minimum grade of D-**Term Offered:** Spring, Fall**EET 4450 Automatic Control Systems**

[0-4 credit hours]

This course covers theoretical and practical aspects of analog control. Included are open and closed loop analysis of processes, causes of instability and corrective actions. Also included are practical applications of closed loop systems.

**Prerequisites:** ENGT 3020 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**EET 4550 Mechatronics II**

[4 credit hours]

Use of programmable controllers and computers in factory automation. Topics included are process control, supervisory software, PLC networking, PLC/CNC integration, device configuration, use of programming software and PLC languages standards.

**Prerequisites:** (EET 2410 with a minimum grade of D- and CSET 2200 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall**EET 4600 Industrial Robotics**

[4 credit hours]

The course includes theoretical background on a robotic system, safety, types of robots, mechanics and control, electronic system components, hardware and software. Hands-on experience programming and manipulating the industrial robot in step-by-step and production modes. Advanced techniques of robot teach pendant programming presented in the course will allow students to develop complex scenarios of robot integration in an industrial environment.

**Prerequisites:** EET 2410 with a minimum grade of D- or ENGT 3050 with a minimum grade of D- or EECS 2300 with a minimum grade of D- or EECS 2340 with a minimum grade of D-**Term Offered:** Spring, Fall



**EET 4650 Industrial Robotics Vision**

[4 credit hours]

This is an engineering technology course to teach students how to use industrial robots outfitted with vision systems which are used in many industrial applications. Hands-on experience programming and manipulating the industrial robot in step- by-step and production modes. Advanced techniques of robot teach pendant programming presented in the course will allow students to develop complex scenarios of robot integration in an industrial environment. Topics covered in this course will enhance student's understanding of industrial machine vision system widely used in industry to improve the automation processes.

**Prerequisites:** EET 3350 with a minimum grade of D- and EET 2410 with a minimum grade of D- and EET 4600 with a minimum grade of C-

**Term Offered:** Spring

## Electronic Commerce (EBUS)

**EBUS 3090 Doing Business Digitally**

[3 credit hours]

This course is an introduction to the networked economy, e-commerce and business transformation. It covers the technological trends, business opportunities, competitive threats, marketing responses and public policy issues concerning e-commerce.

**Term Offered:** Spring, Summer, Fall

**EBUS 3180 Web Design and Data Analytics**

[3 credit hours]

A study of Web site design and management process for effective business communication, including authoring software, graphic tools, scripting techniques, java applets and related technical, legal ethical and managerial issues.

**Term Offered:** Fall

**EBUS 4040 Digital Business Intelligence**

[3 credit hours]

A study of business intelligence management in an e-commerce environment, including the use of data mining and inbound marketing analytics tools for market analysis and business decision supports.

**Prerequisites:** EBUS 3090 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EBUS 4150 Social Media Marketing**

[3 credit hours]

A hands-on course involving case studies of successful e-commerce business models and a team-based project to develop e-commerce plan for established and start-up businesses.

**Prerequisites:** EBUS 3090 with a minimum grade of D-

**Term Offered:** Spring

**EBUS 4940 Internship**

[3 credit hours]

Course description: Gain practical, hands –on professional experience while working in an organization.

## Emergency Medical Services (EMS)

**EMS 1220 Emergency Medical Technician Basic 1**

[3 credit hours]

Emergency Medical Technicians are entry level health care providers of emergency medical services. EMTs are clinicians, trained to respond quickly to emergency situations regarding medical issues, traumatic injuries and accident scenes. This course provides fundamental knowledge and training across the breadth of Emergency Medical Services (EMS). This is part one of 2 sections needed for licensure. Successful completion of both EMT-B1 and EMT B2 courses makes students eligible for state and national certification. This is a two-semester "blended" program with online didactics and in-person skills labs. Skill labs are required and are offered on Tuesdays or Wednesdays every other week from 08:00-14:00. This course is designed for students to take as an elective that are carrying more than 6 credit hours.

**Term Offered:** Fall

**EMS 1230 Emergency Medical Technician Basic 2**

[4 credit hours]

Emergency Medical Technicians are entry level health care providers of emergency medical services. EMTs are clinicians, trained to respond quickly to emergency situations regarding medical issues, traumatic injuries and accident scenes. This course provides fundamental knowledge and training across the breadth of Emergency Medical Services (EMS). This is part two of 2 courses needed for licensure. Successful completion of both EMT-B1 and EMT B2 courses makes student eligible for state and national certification. This is a "blended" program with online didactics and in-person skill labs. Skill labs are required and occur on Tuesdays or Wednesdays EVERY OTHER WEEK.

**Prerequisites:** EMS 1220 with a minimum grade of D-

**Term Offered:** Spring

**EMS 1240 Emergency Medical Technician Field Experience**

[1 credit hour]

Emergency Medical Technicians are entry level health care providers of emergency medical services. EMTs are clinicians, trained to respond quickly to emergency situations regarding medical issues, traumatic injuries and accident scenes. This course provides fundamental knowledge and training across the breadth of Emergency Medical Services (EMS). This is part 3 of 3 sections needed for licensure. This is to be arranged with instructors and clinical coordinator during EMT-B1 OR EMT-B2. Successful completion of EMT-B1, EMT B2 and EMT Field Experience courses makes student eligible for state and national certification.

**Corequisites:** EMS 1230

**Term Offered:** Spring

**EMS 1250 Emergency Medical Technician- Basic**

[7 credit hours]

Emergency Medical Technicians are entry level health care providers of emergency medical services. EMTs are clinicians, trained to respond quickly to emergency situations regarding medical issues, traumatic injuries and accident scenes. This course provides fundamental knowledge and training across the breadth of Emergency Medical Services (EMS). Successful completion of this course makes the student eligible for state and national certification. This one semester is a compressed option designed specifically for students that are not enrolled in more than 6 credit hours. A two-semester option is available for those students seeking this certificate course as an elective. This course includes a clinical component near the end that requires the student to complete a 10 hour/10 patient assessment requirement in the ED or Squad setting.

**Term Offered:** Spring**EMS 1300 Anatomy & Physiology for the Prehospital Provider**

[4 credit hours]

The systemic approach to anatomy and physiology is presented to the student. The knowledge is a fundamental portion of the education of any health care provider and is paramount for successful practice as an EMS provider. Under the current national paramedic curriculum, it has become necessary to expose students to a broader range of information. It will be the focus of this course to better equip the student with structure and function of the human body that will allow a student to recognize the homeostatic state.

**Term Offered:** Summer**EMS 1310 Paramedic I**

[10 credit hours]

This is the first of three courses that provide training for students to become certified paramedics. The course covers a variety of preparatory topics such as legal considerations, assessment, pharmacology, venous access, medication administration, EKG interpretation, and assessment/management of cardiovascular emergencies. It also incorporates hands-on application thru skill labs, simulation, and direct patient contact in a clinical environment. Upon successful completion of this course, the student will be eligible enroll in Paramedic II. In addition to EMS Basic EMT certification, an applicant for this course must have successfully completed an approved Anatomy class and an EMS Program Entrance Examination.

**Term Offered:** Fall**EMS 1320 Paramedic II**

[10 credit hours]

This is the second of three courses that provide training for students to become certified paramedics. This course covers a variety of medical emergencies (ie: respiratory, neurology, endocrinology, etc.) as well as obstetric and gynecological emergencies, childbirth and neonatology, assessment and management of various conditions that involve pediatrics and geriatrics. It also incorporates hands-on application thru skill labs, simulation, and direct patient contact in a clinical environment. Upon successful completion of this course, the student will be eligible enroll in Paramedic III.

**Prerequisites:** EMS 1310 with a minimum grade of D-**Term Offered:** Spring**EMS 1330 Paramedic III**

[10 credit hours]

This is the last of three courses that provide training for students to become certified paramedics. This course will complete the remaining paramedic curriculum with Operational topics such as Rescue, Mass Casualties, etc. The student will also finish all necessary field and clinical requirements, and must demonstrate "street readiness" while completing EMS field Internship hours. Upon successful completion, students are eligible to take the National Registry Examination for certification as a Paramedic.

**Prerequisites:** EMS 1320 with a minimum grade of C**Term Offered:** Summer**EMS 2310 Paramedic I**

[10 credit hours]

This is the first of three courses that provide training for students to become certified paramedics. The course covers a variety of preparatory topics such as legal considerations, assessment, pharmacology, venous access, medication administration, EKG interpretation, and assessment/management of cardiovascular emergencies. It also incorporates hands-on application thru skill labs, simulation, and direct patient contact in a clinical environment. Upon successful completion of this course, the student will be eligible enroll in Paramedic II. In addition to EMS Basic EMT certification, an applicant for this course must have successfully completed an approved Anatomy class and an EMS Program Entrance Examination.

**Term Offered:** Spring, Fall**EMS 3320 Paramedic II**

[10 credit hours]

This is the second of three courses that provide training for students to become certified paramedics. This course covers a variety of medical emergencies (ie: respiratory, neurology, endocrinology, etc.) as well as obstetric and gynecological emergencies, childbirth and neonatology, assessment and management of various conditions that involve pediatrics and geriatrics. It also incorporates hands-on application thru skill labs, simulation, and direct patient contact in a clinical environment. Upon successful completion of this course, the student will be eligible enroll in Paramedic III.

**Prerequisites:** EMS 2310 with a minimum grade of C**Term Offered:** Spring, Summer**EMS 4330 Paramedic III**

[10 credit hours]

This is the last of three courses that provide training for students to become certified paramedics. This course will complete the remaining paramedic curriculum with Operational topics such as Rescue, Mass Casualties, etc. The student will also finish all necessary field and clinical requirements, and must demonstrate "street readiness" while completing EMS field Internship hours. Upon successful completion, students are eligible to take the National Registry Examination for certification as a Paramedic.

**Prerequisites:** EMS 3320 with a minimum grade of C**Term Offered:** Summer, Fall

## Engineering Technology (ENGT)

### ENGT 1000 Engineering Technology Orientation

[1 credit hour]

Overview of careers in engineering technology, information about each program in Engineering Technology, and skills required for success in technological fields, such as computer skills.

**Term Offered:** Spring, Fall

### ENGT 2000 Professional Development

[1 credit hour]

An introduction to the performance expectations of the engineering profession. Topics covered include resume writing, public speaking, interviewing skills, ethics, social responsibilities and the value of continuing education and professional registration.

**Prerequisites:** ENGT 1000 with a minimum grade of D-

**Term Offered:** Spring, Fall

### ENGT 2500 Technical Project Management

[3 credit hours]

General methodology of managing a technical project from concept to operational use. Emphasis is on the functions and responsibilities of the project manager related to maintaining project control and team management.

**Term Offered:** Spring, Fall

### ENGT 3010 Applied Statistics And Design Of Experiments

[4 credit hours]

Introduction to probability, statistical inference and design of experiments. Topics include confidence intervals, tests of hypothesis, regression, analysis of variance, factorial experimental designs and propagation of experimental errors.

**Prerequisites:** MATH 2460 with a minimum grade of C- or MATH 1860 with a minimum grade of C- or MATH 1730 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

### ENGT 3020 Applied Engineering Mathematics

[3 credit hours]

Introduction to partial derivatives, series expansions, complex variables, differential equations and Laplace transform analysis. Application of computers for numerical solution techniques.

**Prerequisites:** (MATH 2460 with a minimum grade of C- or MATH 1860 with a minimum grade of C-) and ENGL 1110 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### ENGT 3050 Fundamentals Of Electricity

[0-4 credit hours]

An introduction to basic analytical techniques for resistive and reactive DC and AC electric circuits, and an introduction to electronic devices, including diodes and transistors.

**Prerequisites:** MATH 1330 with a minimum grade of D- or MATH 1730 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

### ENGT 3600 Engineering Economics

[3 credit hours]

Fundamentals of analysis of engineering projects and capital investment decisions. Review of break-even analyses, rate of return, cost benefit ratios and tax and inflation implications will be performed.

**Term Offered:** Spring, Fall

### ENGT 3940 Co-Op Experience

[1 credit hour]

Approved co-op work experience. Course may be repeated.

**Prerequisites:** ENGT 2000 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### ENGT 3950 Co-op Experience

[1 credit hour]

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

**Prerequisites:** ENGT 3940 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### ENGT 4050 Senior Technology Capstone

[3 credit hours]

A comprehensive problem in engineering technology is assigned to a group of students who work together as a team to present a solution in a formal written and oral report.

**Term Offered:** Spring, Fall

### ENGT 4900 Engineering Review For Professional Certification

[3 credit hours]

A review and application of general engineering principles and procedures in preparation for the Fundamentals of Engineering (FE) exam. Offered for students preparing to take the exam and for those considering it.

### ENGT 4980 Special Topics In Engineering Technology

[1-4 credit hours]

Selected topics in engineering technology with emphasis on intensive investigation of recent literature in areas of special interest.

**Term Offered:** Spring, Summer, Fall

## English (ENGL)

### ENGL 1010 College Composition 1 Co-Requisite

[3 credit hours]

Explanatory and persuasive writing in both personal and public genres; instruction and practice in generating, focusing, developing, researching and presenting ideas in ways consistent with one's subject, purposes and intended audiences.

**Term Offered:** Spring, Summer, Fall

Core English Composition, OT36 English Composition

### ENGL 1020 Writing And Grammar For Students Of English As A Second Language

[3 credit hours]

Course work focuses on the major grammatical patterns of academic writing in English as well as accuracy in the mechanics of academic writing. The primary emphasis is on these features in the context of the students' own written work. Eligibility by placement exam only. A maximum of 3 semester hours in ENGL 1020 and 1120 may be counted toward fulfilling the 124 hour requirement for graduation.

**Prerequisites:** English Placement with a score of 1020

**Term Offered:** Spring, Fall

**ENGL 1110 College Composition I**

[3 credit hours]

Explanatory and persuasive writing in both personal and public genres; instruction and practice in generating, focusing, developing, researching and presenting ideas in ways consistent with one's subject, purposes and intended audience. ESL students must have completed ENGL 1020 with grade of Pass. From Composition I with Workshop, Composition I and Composition II, no more than 6 hours apply toward graduation.

**Prerequisites:** ACT Composite with a score of 18 or Accuplacer Sentence SkIs Engl with a score of 88 or Accuplacer NG Writing with a score of 263 or TOTAL SCORE with a score of 940 or High School GPA with a score of 2.75

**Term Offered:** Spring, Summer, Fall

Core English Composition, OT36 English Composition

**ENGL 1130 College Composition II: Academic Disciplines And Discourse**

[3 credit hours]

Reading and analyzing documents from specific disciplines to synthesize results from multiple perspectives and produce disciplinarily appropriate writing from your research. A significant focus on academic argument and advanced research writing skills included. Discipline-specific sections offered. Web enhanced. Critical reading, research papers required.

**Prerequisites:** ENGL 1110 with a minimum grade of D- or ENGL 1010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core English Composition, OT36 English Composition

**ENGL 2010 Advanced Composition**

[3 credit hours]

Instruction and practice in writing expository and persuasive prose for a variety of audiences with particular attention to the effect of content and style upon readers. Introduction to advanced methods for critical thinking, argumentation, and research writing. Writing for discipline-specific and/or public audiences encouraged.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 1210 with a minimum grade of D- or ENGL 1220 with a minimum grade of D- or ENGL 1230 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ENGL 2710 Reading Fiction**

[3 credit hours]

Exploration of various kinds of fiction with goals of literary appreciation and analytical insight. (not for major credit)

**Prerequisites:** ENGL 1100 with a minimum grade of D- or ENGL 1110 with a minimum grade of D- or HON 1010 with a minimum grade of D- or ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or HON 1020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

**ENGL 2720 Reading Drama**

[3 credit hours]

Exploration of various kinds of drama with goals of literary appreciation and analytical insight. (not for major credit)

**Prerequisites:** ENGL 1100 with a minimum grade of D- or ENGL 1110 with a minimum grade of D- or HON 1010 with a minimum grade of D- or ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or HON 1020 with a minimum grade of D-

**Term Offered:** Spring, Fall

Core Arts & Humanities, OT36 Arts and Humanities

**ENGL 2730 Reading Poetry**

[3 credit hours]

Exploration of various kinds of poetry with goals of literary appreciation and analytical insight. (not for major credit)

**Prerequisites:** ENGL 1100 with a minimum grade of D- or ENGL 1110 with a minimum grade of D- or HON 1010 with a minimum grade of D- or ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or HON 1020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities

**ENGL 2770 Ethnic American Literature**

[3 credit hours]

Study of US Ethnic American Literature. The literature of a particular group may be specified; consult Time Schedules for specific topic.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, Multicultural US Diversity

**ENGL 2800 Writing About Literature**

[3 credit hours]

A writing-intensive (WAC) course introducing the process of writing various types of papers and analyzing literary works. Special emphasis on discovering a topic and on revision and structure in expository writing.

**Prerequisites:** ENGL 1100 with a minimum grade of D- or ENGL 1110 with a minimum grade of D- or HON 1010 with a minimum grade of D- or ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or HON 1020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities

**ENGL 2950 Science And Technical Report Writing**

[3 credit hours]

Instruction and practice in multiple forms of technical and scientific communication for varied scientific and technical audiences. Emphasis on writing informational and analytical reports and documents in medical, scientific or technical fields. Additional focus on writing for multiple audiences and in different mediums, including online mediums.

**Prerequisites:** ENGL 1010 with a minimum grade of D- or ENGL 1110 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core English Composition, OT36 English Composition

**ENGL 2960 Professional and Business Writing**

[3 credit hours]

Instruction and practice in multiple forms of professional and business writing within an organizational context. Emphasis on the analytical report based on research. Additional focus on writing for multiple audiences and in different mediums, including online mediums.

**Prerequisites:** ENGL 1110 with a minimum grade of D- or ENGL 1010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core English Composition, OT36 English Composition

**ENGL 3010 Creative Writing**

[3 credit hours]

A basic introduction to creative writing. Students write poems, stories or creative nonfiction which serve as the basis for classroom discussion and for conferences with instructor.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 1210 with a minimum grade of D- or ENGL 1220 with a minimum grade of D- or ENGL 1230 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ENGL 3020 The Writing Career: Readings and Professionalization**

[3 credit hours]

Through the analysis of a diverse range of literary genres, this course will teach writers how to develop their own material by studying as models the formal strategies of other writers, including but not limited to language, structure, narrator or speaker, character, dialogue, plot, tone, and the many other elements of literature. This course will also offer a unit on professionalization.

**Prerequisites:** ENGL 3010 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ENGL 3040 Playwriting**

[3 credit hours]

Creative writing for the theatre analyzing traditional and contemporary structure and style.

**Prerequisites:** ENGL 2720 with a minimum grade of D- or THR 2299 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ENGL 3050 Persuasive Writing**

[3 credit hours]

Analysis of and practice in the techniques of persuasive writing. Emphasis varies from writing about legal issues to writing about issues of public controversy.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 1210 with a minimum grade of D- or ENGL 1220 with a minimum grade of D- or ENGL 1230 with a minimum grade of D-

**Term Offered:** Spring, Fall

**ENGL 3060 Screenwriting**

[3 credit hours]

This course involves practical analysis of screenplays, emphasizing story structure and characterization. Students plan, write and refine story lines before writing actual scripts.

**Term Offered:** Spring, Summer, Fall

**ENGL 3080 The Art And Process Of The Book**

[3 credit hours]

This course examines all aspects of the printed book - from scrolls to Gutenberg to contemporary publishing - as students work towards designing, printing and binding a finely printed edition.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 1210 with a minimum grade of D- or ENGL 1220 with a minimum grade of D- or ENGL 1230 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**ENGL 3150 Linguistic Principles**

[3 credit hours]

An introduction to modern linguistic theories about the nature and structure of language with emphasis on English.

**Term Offered:** Spring, Fall

**ENGL 3360 Introduction to Poetry and Poetics**

[3 credit hours]

This course serves as an introduction to the techniques and ideas that underlie poetry. It will feature a broad array of poems from multiple times and places, major statements on poetics, and discussion of how poets conceive of what poetry is and how poetics affects reading.

**ENGL 3600 American Literary Traditions**

[3 credit hours]

Introduction to literary history, and the terminology and techniques of the historical study of American literature, intended as preparation for the English major. Texts may include works from the colonial period to the 21st-century.

**Term Offered:** Spring, Summer, Fall

**ENGL 3610 British Literary Traditions**

[3 credit hours]

Introduction to literary history, and the terminology and techniques of the historical study of British literature, intended as preparation for the English major. Texts may include works from the Medieval period to the 21st-century.

**Term Offered:** Spring, Fall

**ENGL 3650 Science Fiction And Fantasy Literature**

[3 credit hours]

This course examines literary works of science fiction and fantasy, and related scholarship, from a variety of perspectives. Readings are selected from prominent writers in both genres.

**Term Offered:** Spring, Summer, Fall

**ENGL 3660 Latinx Literature in the U.S.**

[3 credit hours]

Introduction to Latinx writers, literatures, and cultures in the United States from the 1960s to the present moment.

**Term Offered:** Spring, Fall

**ENGL 3670 Literature of Diverse and Nonwhite Communities**

[3 credit hours]

Introduction to study of non-white authors representing formerly colonized countries or other nonwestern and diasporic communities. May include African-American, Caribbean, Central and South Asian, or African literature. Will include texts written in English and/or translated from other languages. Intended as preparation for the English major.

**Term Offered:** Spring, Fall**ENGL 3710 Literature Of The Old Testament**

[3 credit hours]

A study of the Old Testament from the literary point of view, including ancient poetry, history, romance, short story, hymn, prophecy, and wisdom writing.

**Term Offered:** Spring, Summer, Fall**ENGL 3730 Folklore**

[3 credit hours]

A survey of the field of folklore with an emphasis on folk narrative, folk music and material culture in America.

**Term Offered:** Spring, Fall**ENGL 3740 Folklore And Literature**

[3 credit hours]

A study in the relationship of oral and written literature. Focus is on the literary uses of folk forms and use of tradition by specific writers and schools.

**Term Offered:** Fall**ENGL 3750 Women And Literature - Writing Across the Curriculum**

[3 credit hours]

Examines literary works in light of major issues raised by feminist criticism. Specific emphasis varies. Recommended ENGL 2700 or 3790

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**ENGL 3760 European Literature To The Renaissance**

[3 credit hours]

Offered as Writing Across the Curriculum (WAC) course. A selective study of works of European literature (in translation) from the Ancient Greeks and Romans and Medieval and Renaissance European cultures other than Britain. Particular texts vary, but may include a variety of genres and authors across the periods. Recommended: ENGL 3600, 3610, or 3790.

**Term Offered:** Fall**ENGL 3770 World Literature And Cultures**

[3 credit hours]

This course examines texts and cultures from around the world (and in particular the non-western world). The genres examined include autobiography, poetry, short fiction, novels, plays and histories.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**ENGL 3790 Foundations Of Literary Study**

[3 credit hours]

Writing Across the Curriculum Course. An overview and introduction to the discipline of literary study.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 1210 with a minimum grade of D- or ENGL 1220 with a minimum grade of D- or ENGL 1230 with a minimum grade of D-

**Term Offered:** Spring, Fall**ENGL 3810 Shakespeare I**

[3 credit hours]

An introduction to the study and interpretation of Shakespeare's works in literary, theatrical, and historical context, with a focus on his drama.

**Term Offered:** Spring, Fall**ENGL 3850 LGBTQ Literature**

[3 credit hours]

Study of literature by LGBTQ people. Individual sections may focus specifically on one geographic region or historical period.

**Term Offered:** Spring, Fall**ENGL 3980 Special Topics in Literature**

[3 credit hours]

Group study of a period, genre, author, or special literary topic. May be repeated with change of specialty number. Topics will be announced in the semester Time Schedules.

**Term Offered:** Spring, Fall**ENGL 4030 Writing Workshop In Nonfictional Prose**

[3 credit hours]

Directed study of nonfiction genres, rhetorical forms and elements of style; extensive practice in the writing and critical evaluation of prose.

**Prerequisites:** ENGL 2010 with a minimum grade of D- or ENGL 3010 with a minimum grade of D-

**Term Offered:** Spring, Fall**ENGL 4070 Writing Workshop In Poetry**

[3 credit hours]

An advanced workshop in writing poetry emphasizing a wider range of readings, craft and technique.

**Prerequisites:** ENGL 3010 with a minimum grade of D-**Term Offered:** Spring, Fall**ENGL 4080 Writing Workshop In Fiction**

[3 credit hours]

An advanced workshop emphasizing a wider range of readings, craft and technique. May be repeated once for credit.

**Prerequisites:** ENGL 3010 with a minimum grade of D-**Term Offered:** Spring, Fall

**ENGL 4090 Current Writing Theory**

[3 credit hours]

A study of current theory and research connecting reading, critical thinking, and writing with applications of theory to students' writing practice.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D- or ENGL 1170 with a minimum grade of D- or ENGL 1190 with a minimum grade of D- or ENGL 1210 with a minimum grade of D- or ENGL 1220 with a minimum grade of D- or ENGL 1230 with a minimum grade of D-

**Term Offered:** Spring, Fall**ENGL 4100 The History Of English**

[3 credit hours]

Study of the changes that have taken place in the English language from the earliest days to the present.

**Term Offered:** Spring, Summer, Fall**ENGL 4210 Issues in ESL Writing**

[3 credit hours]

Course content includes key concepts in ESL writing instruction and research; characteristics of second language writers and their texts; curricular options; and responding to and assessing ESL writing.

**Term Offered:** Spring, Fall**ENGL 4280 American Fiction: 20th and 21st Century**

[3 credit hours]

Major developments in the 20th-century and 21st Century American short story and novel. Recommended: ENGL 3600 or 3790.

**Term Offered:** Spring, Fall**ENGL 4300 Medieval and Early Tudor Drama**

[3 credit hours]

A study of drama and performance from the British Isles and relevant continental traditions in the late Middle Ages through the early 16th century, in their cultural, material, and performance contexts. Course may include performance traditions and texts such as monastic and liturgical drama, civic Creation-to-Doomsday play cycles, manuscript collections of drama, morality plays, passion plays, miracle and saints' plays, folk plays, courtly interludes and mummings, and royal entries, as well as modern revivals.

**ENGL 4310 British Drama To 1642**

[3 credit hours]

A study of drama in England from the opening of the first public theaters to their closing in 1642. May include plays produced for public performance and other dramatic works. Emphasis will be on playwrights other than Shakespeare. Recommended: ENGL 3610, 3790, or 3810

**ENGL 4400 British Literature: The Medieval Period**

[3 credit hours]

The study of British literature before 1500, often in translation. Topics vary between early medieval texts and culture (8th to 11th centuries), late medieval texts and culture (12th to 15th centuries, excluding Chaucer), and specific themes or genres across sub-periods. Check departmental course descriptions for the specific topic in a given semester. May be repeated for credit if topics are different. Recommended: ENGL 3610, 3810, or 3790.

**Term Offered:** Spring, Fall**ENGL 4420 Renaissance Literature**

[3 credit hours]

Study of major authors, genres, and ideas of the English Renaissance. Individual sections may focus on more specific topics.

**Term Offered:** Spring, Fall**ENGL 4440 Early 17th Century English Literature**

[3 credit hours]

Poetry and prose from 1603 to 1660. Recommended: ENGL 3610, 3790, or 3810.

**Term Offered:** Spring, Fall**ENGL 4460 British Literature: Restoration And 18th Century**

[3 credit hours]

Drama, poetry, and prose of the Restoration, neo-classical and pre-Romantic periods. Recommended: ENGL 3610, 3790, or 3810.

**Term Offered:** Spring**ENGL 4500 British Literature: The Romantic Period**

[3 credit hours]

Study of major authors, genres, and ideas of the Romantic period: approximately 1789 to 1837.

**Term Offered:** Spring, Fall**ENGL 4520 British Literature: The Victorian Period**

[3 credit hours]

Study of major authors, genres, and ideas of the Victorian period: approximately 1837 to 1901.

**Term Offered:** Spring, Fall**ENGL 4540 British Literature: The 20th and 21st Centuries**

[3 credit hours]

Study of major authors, genres, and ideas of 20th-century and 21st-century British literature.

**ENGL 4550 Literature of the British Empire, Beginnings to 1850**

[3 credit hours]

Study of the development of race, empire, and colonialism through literary texts written in (or translated into) English from the late-thirteenth century to the abolition of the British slave trade in the early-nineteenth.

**Term Offered:** Spring, Fall**ENGL 4560 Literature of the British Empire 1850 to the Present**

[3 credit hours]

Studies in texts from Britain and its former colonies. Genres may include the novel, travel writing, memoir, and film.

**Term Offered:** Spring, Fall**ENGL 4600 Early American Literature**

[3 credit hours]

The poetry and theology of the New England Puritans, especially Bradstreet and Taylor, the literature of the American Enlightenment, the beginnings of American Romanticism in Bryant and Cooper.

Recommended: ENGL 3600 or 3790.

**Term Offered:** Fall**ENGL 4610 Nineteenth-Century Latinx Literature**

[3 credit hours]

Cultural production of Latinx peoples in the nineteenth century United States. Topics to include the social and cultural impact of colonization in the Southwestern part of the U.S and the Atlantic world and identity formation among Hispanophone Black, Indigenous, and people of color (BIPOC).

**Term Offered:** Spring, Fall

**ENGL 4620 American Romanticism**

[3 credit hours]

Literature of the United States from the early nineteenth century through about 1865, with concentration on the literary production between 1840 and 1865. Recommended: ENGL 3600 or 3790.

**Term Offered:** Spring, Fall**ENGL 4630 American Literary Realism**

[3 credit hours]

American literature from the post-Civil War period to the early 20th Century. Recommended: ENGL 3600 or 3790.

**Term Offered:** Fall**ENGL 4640 Early 20th Century American Poetry**

[3 credit hours]

Study of American poetry from 1900 to 1950. Recommended: ENGL 3600 or 3790.

**Term Offered:** Spring, Fall**ENGL 4650 African American Writers Before The 20th Century**

[3 credit hours]

A survey of African-American prose, poetry, drama and fiction from 1760 to 1915. Recommended: ENGL 2800, or 3790.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**ENGL 4660 African American Literature In The 20th and 21st Century**

[3 credit hours]

A course focused on 20th and 21st century African American poetry, fiction, nonfiction, and drama.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**ENGL 4670 Asian American Literature**

[3 credit hours]

A study of the diverse traditions and key debates in Asian American and Transpacific literature.

**Term Offered:** Spring, Fall**ENGL 4680 American Literature Since World War II**

[3 credit hours]

An exploration of American literature from 1945 to the present day with a focus on both poetry and fiction, and possibly drama and other literary forms. Recommended: ENGL 3600 or 3790.

**Term Offered:** Spring, Fall**ENGL 4690 Native American Literature And Culture**

[3 credit hours]

Study of texts by and about Native Americans, including the oral traditions of storytelling and mythology.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**ENGL 4800 Chaucer**

[3 credit hours]

A study of Geoffrey Chaucer's major works and cultural, literary, and critical contexts. All works will be read in Chaucer's original Middle English. Course has two variations: one focusing on The Canterbury Tales and another on the dream visions and Troilus and Criseyde. Consult Time Schedules or departmental course descriptions for the specific topic. May be repeated for credit with different topic. Recommended: ENGL 3610, 3790 or 3810.

**Term Offered:** Spring, Fall**ENGL 4810 Shakespeare II**

[3 credit hours]

Advanced study of Shakespeare's plays, particularly his later plays.

Recommended: ENGL 3810.

**Term Offered:** Spring, Fall**ENGL 4820 Milton**

[3 credit hours]

A study of the poetry and selected prose of John Milton. Recommended: ENGL 3610, 3810, or 3790.

**Term Offered:** Spring, Fall**ENGL 4850 Studies In The Work Of A British Author**

[3 credit hours]

Author changes with each offering. Consult Time Schedules for authors to be studied. Can be repeated for credit if topic is different. Recommended: ENGL 3610, 3810, or 3790.

**Term Offered:** Spring, Fall**ENGL 4860 Studies In The Work Of An American Author**

[3 credit hours]

Author changes with each offering. Consult Time Schedules for authors to be studied. Can be repeated for credit if topic is different. Recommended: ENGL 3600, 3810, or 3790.

**Term Offered:** Spring, Fall**ENGL 4900 English Honors Seminar**

[2 credit hours]

The Honors Seminar is taken in conjunction with the Honors Thesis (ENGL 4960). Required of all candidates for departmental Honors.

**Term Offered:** Fall**ENGL 4940 Internship In English**

[1-4 credit hours]

Internship with an approved program, company or agency employing research, writing editing or linguistics expertise. Student must submit proposal for approval by advisory and a departmental committee. (Repeatable for a maximum of 4 hours credit.)

**Term Offered:** Spring, Summer, Fall**ENGL 4950 Special Topics For Writers**

[3 credit hours]

An advanced course in genre writing. Content varies with each offering. May be repeated once for credit.

**Term Offered:** Spring, Fall**ENGL 4960 English Honors Thesis**

[4 credit hours]

Research and writing of a thesis on a topic in English or linguistics required of all candidates for departmental honors.

**Corequisites:** ENGL 4900**Term Offered:** Spring, Fall**ENGL 4980 Special Topics In Literature**

[3 credit hours]

An undergraduate course on a special topic. Consult Time Schedules for topic to be studied and semester offered.

**Term Offered:** Spring, Fall



**ENGL 4990 Independent Study**

[1-3 credit hours]

Supervised independent study in special topics of British and American language and literature. Courses may be repeated more than once for credit.

**Term Offered:** Spring, Summer, Fall

## Entrepreneurship, Family and Small Business (EFSB)

**EFSB 3480 Entrepreneurial Finance**

[3 credit hours]

Course focuses on basics of using financial tools to create and analyze financial statements in new ventures and to understand the sources and management of capital for start-ups and growing businesses.

**Prerequisites:** BUAD 2040 with a minimum grade of D- or ACTG 1040 with a minimum grade of D-

**Term Offered:** Fall**EFSB 3500 Introduction To Entrepreneurship for Non-Business Students**

[3 credit hours]

Course provides an extensive overview of issues and opportunities involved in starting new businesses. Focus is on the entrepreneurial environment and opportunities, technopreneurship, and the entrepreneurial mindset. (This course may not be taken with or after taking EFSB 3590).

**Term Offered:** Fall**EFSB 4010 Growing Family And Entrepreneurial Businesses**

[3 credit hours]

Advanced study of issues pertaining to family and entrepreneurial businesses. Issues of family psychology, growth strategies, financing, valuation, and harvesting the business are studied using hands-on consulting and case analysis.

**Prerequisites:** (EFSB 3480 with a minimum grade of D- and EFSB 4590 with a minimum grade of D-) or (BUAD 3040 with a minimum grade of D- and EFSB 4590 with a minimum grade of D-)

**Term Offered:** Spring, Fall**EFSB 4590 Entrepreneurship and Small Business Management**

[3 credit hours]

A study of entrepreneurship and the process of starting and/or managing a new venture. Tools for developing and managing in all areas in a new or small business are applied in hands-on consulting with local companies and case analysis.

**Prerequisites:** EFSB 3480 (may be taken concurrently) with a minimum grade of D- or BUAD 3040 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Fall**EFSB 4690 Strategic Management of Innovation**

[3 credit hours]

The course addresses the entire commercialization process from an innovative idea to market. Students will learn how organizations can increase innovative productivity to develop an understanding of strategic management.

**Term Offered:** Spring, Fall**EFSB 4900 Cannabis Entrepreneurship**

[3 credit hours]

EFSB 4900/6900 is an entrepreneurship course with a core focus on business verticals in the cannabis industry. The course will cover a substantial body of knowledge, concepts and tools that entrepreneurs need to know prior to and while starting their new ventures.

**Term Offered:** Spring, Fall**EFSB 4940 Internship In Entrepreneurship And Family Business**

[3 credit hours]

Receive practical entrepreneurship experience working in a family or small business.

**Term Offered:** Spring, Summer, Fall**EFSB 4980 Special Topics In Entrepreneurship And Family Business**

[3 credit hours]

This course is designed to focus on current issues in entrepreneurship and family business.

**EFSB 4990 Independent Study**

[1-3 credit hours]

Individually supervised study in Entrepreneurship and Family Business. Student must submit a proposal to be approved by the Program Advisor or Chair prior to enrolling in the course.

**Term Offered:** Spring, Summer, Fall

## Environmental Sciences (EEES)

**EEES 1010 Physical Geology**

[3 credit hours]

Introduction to the physical processes and composition of the Earth, including plate tectonics, internal structure, origin and classification of rocks and minerals, causes of geologic hazards such as earthquakes and volcanoes, surficial processes, water and natural resources, and geologic time. No credit if EEES2100 is taken. Natural sciences core course. Optional 1-credit lab, EEES 1020.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**EEES 1020 Introductory Geology Laboratory**

[1 credit hour]

Investigations of fundamental geological processes, the materials of the Earth, and geologic time. Identification of rocks and minerals.

Interpretation of geologic features and processes from maps, aerial images and physical models. This lab supports the introductory geology courses EEES 1010, 1050 and 2100. Natural sciences lab core course.

**Prerequisites:** EEES 1010 (may be taken concurrently) with a minimum grade of D- or EEES 2100 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**EEES 1050 Geological Hazards And The Environment**

[3 credit hours]

Introduction to risk mitigation involving hazardous geological processes and materials: volcanic eruptions, earthquakes, floods, ground subsidence and collapse, radon, asbestos and others.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

**EEES 1130 Down To Earth: Environmental Science**

[3 credit hours]

Evaluation of environmental controversies using ecology, economics and human values. Issues range from global change, overpopulation, food production, pollution, disease, endangered species, to unique habitats including rainforests and coral reefs. (not for credit in the major)[Fall, Spring]. Natural Sciences core course.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**EEES 1140 Environmental Solutions Laboratory**

[1 credit hour]

Basic scientific methods are used to conduct laboratory and field studies relevant to contemporary environmental issues.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

**EEES 1150 Marine Biology**

[3 credit hours]

An exploration of life in the world's oceans, emphasizing how marine organisms thrive in broadly diverse environments. Topics include the major ocean habitats, and ecological relationships among associated flora/fauna.

**Term Offered:** Spring, Fall

Core Natural Sciences

**EEES 1170 Microbes And Society**

[3 credit hours]

A survey course focused on how microbes impact everyday life including discussions of infectious disease, food safety, and bioterrorism. Natural Sciences core course.

**Term Offered:** Spring, Summer

Core Natural Sciences

**EEES 1180 Marine Biology Coral Reef Lab**

[1 credit hour]

A virtual laboratory-based exploration of the coral reef environment and the dynamics of the coral reef ecosystem. The web of life on reefs will be examined at multiple levels, including living and non-living components and specialized roles among species, with emphasis on the delicate balance of natural processes and impacts of various stressors. Online data labs will be enhanced with at-home activities including creating and manipulating a physical model of a reef ecosystem. This course fulfills the university requirement for a natural science laboratory.

**Term Offered:** Spring

Core Natural Sciences

**EEES 2010 Introduction To Environmental Studies**

[3 credit hours]

Introduction to issues currently affecting environmental quality. Fundamental scientific concepts relating to those issues and ethical, economic, legal and political considerations that affect the resolution of environmental problems.

**Term Offered:** Spring, Fall**EEES 2020 Introduction to the Environment: Energy and Climate**

[3 credit hours]

Introduction to issues currently affecting environmental quality associated with energy production and the impacts to climate change. Fundamental scientific concepts relating to those issues and ethical, economic, legal and political considerations that affect the resolution of environmental problems.

**Term Offered:** Spring, Fall**EEES 2030 Introduction to the Environment Land-Use and Water**

[3 credit hours]

Introduction to issues currently affecting environmental quality associated with land-use (e.g. agriculture and urbanization) and focusing on the impacts to biodiversity and aquatic systems. Fundamental scientific concepts relating to those issues and ethical, economic, legal and political considerations that affect the resolution of environmental problems.

**Term Offered:** Spring, Fall**EEES 2100 Fundamentals Of Geology**

[4 credit hours]

Consideration of earth materials and the dynamic external and internal processes active on earth; the physical and biological history of the earth. Intended for science majors.

**Term Offered:** Spring, Fall**EEES 2150 Biodiversity**

[4 credit hours]

Exploration of biodiversity and general biological processes and problems as they are experienced by all living organisms: genetics, reproduction, evolution, and ecology.

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**EEES 2160 Biodiversity Laboratory**

[1 credit hour]

Laboratory exercises designed to complement the material covered in EEES 2150.

**Corequisites:** EEES 2150**Term Offered:** Spring, Fall

Core Natural Sciences

**EEES 2200 Climate Change**

[3 credit hours]

An overview of the understanding of climate change and role of human activities, including atmospheric processes, greenhouse effect, carbon cycling, physical evidence, impacts, and proposed global actions in response.

**Term Offered:** Spring, Summer, Fall**EEES 2230 Earth History: Historical Geology and Paleontology - WAC**

[4 credit hours]

The morphology and paleoecology of fossil taxa, significant strata, and tectonic events important to the interpretation of paleoenvironments and Earth history are stressed. Field trip(s) required.

**Prerequisites:** EEES 1010 with a minimum grade of C- or EEES 2100 with a minimum grade of C-**Term Offered:** Spring

**EEES 2400 Oceanography And Water Resources**

[3 credit hours]

An exploration of the geological, physical, chemical and biological nature of the oceans. Emphasis on the origin and evolution of ocean basins, plate tectonics, properties of seawater, and physical processes of circulation, especially as related to climate, the hydrologic cycle, and life in the oceans.

**Term Offered:** Spring, Fall**EEES 2500 Computer Applications In Environmental Sciences**

[1 credit hour]

Desktop computers used by scientists: word processing, spreadsheets, databases, GPS, processing GPS files, contour and mapping software.

**Term Offered:** Spring, Fall**EEES 2510 Advanced Computer Applications**

[2 credit hours]

Collecting and analyzing spatial data, digital elevation models, mathematical modeling of natural processes and introduction to matrix operations in Excel.

**Prerequisites:** EEES 2500 with a minimum grade of C-**Term Offered:** Spring, Fall**EEES 2600 Methods for Environmental Sciences**

[3 credit hours]

Hands on active-learning course exploring a range of commonly used field and lab exercises for environmental sciences relevant to local environmental issues. Activities will focus on developing testable hypotheses, data collection, data analysis, and presenting results in a scientific format.

**Prerequisites:** EEES 2150 with a minimum grade of C- and EEES 2500 with a minimum grade of C- and CHEM 1230 with a minimum grade of C-**Term Offered:** Spring**EEES 2760 Methods for Environmental Sciences**

[3 credit hours]

Hands on active-learning course exploring a range of commonly used field and lab exercises used in environmental sciences. Activities will focus on data collection, data analysis, and use of standard field and lab methods relevant to local environmental issues. Exercises will focus on developing testable hypotheses, collecting data to answer those hypotheses using standard methods and equipment, analyzing data, and writing and presenting results in a scientific format.

**Prerequisites:** EEES 2150 with a minimum grade of C- or EEES 2100 with a minimum grade of C-**Term Offered:** Spring, Fall**EEES 2980 Special Topics**

[1-4 credit hours]

A lower division undergraduate course covering some aspect of environmental sciences not covered in the formal course offerings of the department. Students may repeat the course for different topics.

**Term Offered:** Spring, Fall**EEES 2990 Independent Study**

[1-4 credit hours]

Student selects an appropriate approved subject for individualized study and prepares a report or gives equivalent evidence of mastery of the selected subject.

**Term Offered:** Spring, Summer, Fall**EEES 3000 Geology Of National Parks**

[3 credit hours]

Study of regional geology of the U.S., focusing on national parks and monuments with the aim of furthering the student's geological knowledge and encouraging visitation as a tourist.

**Prerequisites:** EEES 1010 with a minimum grade of C- or EEES 2100 with a minimum grade of C-**Term Offered:** Fall**EEES 3050 General Ecology**

[3 credit hours]

The structure, function and regulation of populations, communities and ecosystems, emphasizing human activities and their ecological consequences.

**Prerequisites:** EEES 2150 with a minimum grade of C- or BIOL 2150 with a minimum grade of C-**Term Offered:** Spring, Fall**EEES 3060 General Ecology Laboratory**

[1 credit hour]

Laboratory and field exercises demonstrating ecological principles.

**Corequisites:** EEES 3050**Term Offered:** Fall**EEES 3100 Surficial Processes**

[3 credit hours]

Description and study of the earth's surface features from the point of view of their origin, including landforms created by glaciers, rivers, the wind, along coasts, tectonics and erosional/depositional processes. Field trip required.

**Prerequisites:** (EEES 1010 with a minimum grade of C- or EEES 2100 with a minimum grade of C-) and EEES 1020 with a minimum grade of C-**Term Offered:** Spring, Fall**EEES 3210 Mineralogy and Petrology**

[4 credit hours]

Mineralogy: Occurrence, characteristics and crystal chemistry, identification and geologic environments of formation of common minerals. Igneous and Metamorphic Petrology: Igneous and metamorphic rock characteristics, origins, classification and interpretation of conditions of formation. Laboratory: Using megascopically observable physical properties to identify and classify common minerals and infer crystal chemistry. Megascopic identification and classification of igneous and metamorphic rocks, identification of mineral associations and interpretation of conditions of formation.

**Prerequisites:** (EEES 1010 with a minimum grade of C- or EEES 2100 with a minimum grade of C-) and CHEM 1230 with a minimum grade of C-**Term Offered:** Spring, Fall**EEES 3220 Sedimentary Petrology and Stratigraphy**

[3 credit hours]

Megascopic description of sediments and sedimentary rocks, including their characteristics, classification and diagenesis; introduction to depositional processes and environments of sediments, and stratigraphic relationships of sedimentary rocks.

**Prerequisites:** EEES 2100 with a minimum grade of C- or EEES 1010 with a minimum grade of C-**Term Offered:** Spring, Fall

**EEES 3250 Engineering Geology**

[3 credit hours]

An introduction to the application of geologic principles to engineering practices through a series of readings, laboratory exercises and practical problems. First the fundamentals of geology are presented including: plate tectonics and the resulting distributions of geologic materials and phenomena; mineral, rock and soil characterization; geologic structures; and construction and use of geologic maps. The remainder of the course investigates specific geologic processes and applications to engineering practices.

**Prerequisites:** MATH 1750 with a minimum grade of C- or MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C- or MATH 2450 with a minimum grade of C-

**Term Offered:** Fall**EEES 3310 Earth Structures and Mapping**

[3 credit hours]

Rock deformation and its expression on maps; applying geometrical and trigonometric principles to solve problems involving dipping strata; stereonet applications, interpreting geological maps, constructing cross sections, geological GIS applications.

**Prerequisites:** EEES 2100 with a minimum grade of C- or EEES 1010 with a minimum grade of C-

**Term Offered:** Fall**EEES 3600 Oceanography**

[3 credit hours]

An exploration of the geological, physical, chemical and biological nature of the oceans. Emphasis on the origin and evolution of ocean basins, plate tectonics, properties of seawater, and physical processes of circulation, especially as related to climate, the hydrologic cycle, and life in the oceans.

**Prerequisites:** EEES 2100 with a minimum grade of C- or EEES 1010 with a minimum grade of C- and MATH 1210 with a minimum grade of C- or MATH 1320 with a minimum grade of C- or MATH 1340 with a minimum grade of C-

**Term Offered:** Spring**EEES 3810 Science of Gardening**

[3 credit hours]

This course explores the science underlying gardening, and it is designed to foster understanding of basic scientific knowledge and the scientific process, as well as the practical application of science. The course focuses on how plants are affected by their biotic and abiotic environment, especially light, water, temperature, nutrients, soil, and enemies and partners.

**Prerequisites:** EEES 2150 with a minimum grade of C-

**EEES 3900 Literature And Communications In The Environmental Sciences**

[3 credit hours]

Survey and analysis of environmental issues featuring guest experts from a variety of environment-related occupations, readings from the environmental literature and student reports.

**Prerequisites:** ENGL 1110 with a minimum grade of C-

**Term Offered:** Spring, Fall**EEES 4100 Glacial and Quaternary Geology**

[3 credit hours]

To provide broad geologic understanding of cyclical events including glaciation, sea level, and ice sheet paleogeography during the Quaternary Period. Also, to provide detailed geologic understanding of what a glacier is and how it shapes the landscape. Specific topics will include mass balance, ice flow, hydrology, erosion, deposition, resultant landforms, glacial lake environments, and development of the regional glacial landscape. A field trip is mandatory.

**Prerequisites:** EEES 3100 with a minimum grade of C-

**Term Offered:** Spring**EEES 4150 Evolution**

[3 credit hours]

The modern theory of evolution is presented within a general framework of biological and geological evidence focusing on the fossil record, early biomolecules, protein synthesis, genetics, phylogeny and vertebrate evolution.

**Prerequisites:** (EEES 2150 with a minimum grade of C- or BIOL 2150 with a minimum grade of C-) and CHEM 1230 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall**EEES 4160 Environmental Data Management**

[3 credit hours]

An introductory course in data management for environmental science seniors covering the basics of data management practices and the use of Excel and R for data preparation, evaluation, analysis, visualization, and interpretation. Prerequisite: EEES 2500 or approval of instructor.

**Prerequisites:** EEES 2500 with a minimum grade of C-

**Term Offered:** Fall**EEES 4200 Quaternary Geology**

[3 credit hours]

To provide understanding of such cyclical events as climate change, sea level fluctuations, vegetation change and ice sheet paleogeography during the Quaternary Period and to explore future changes for planet Earth. Field trip is mandatory.

**Prerequisites:** EEES 3100 with a minimum grade of C-

**Term Offered:** Spring**EEES 4220 Environmental Geochemistry**

[3 credit hours]

Chemical reactions of environmental concern. Water and soil chemistry related to contaminant fate and mobility. Computer software used.

**Term Offered:** Spring**EEES 4240 Soil Science**

[3 credit hours]

Basic principles of soil formation, physics, and chemistry with emphasis on their influence on fluid and chemical migration and preservation of soil quality from geological, agricultural and environmental perspectives.

**Prerequisites:** CHEM 1230 with a minimum grade of C- or CHEM 1090 with a minimum grade of C-

**Term Offered:** Spring

**EEES 4250 Soil Ecology**

[3 credit hours]

Underlying concepts and theory of modern soil ecology will be reviewed including the biogeochemical cycles and ecological functions of soil, and the effects of human activities. (Spring, alternate years, odd)

**Prerequisites:** EEES 3050 with a minimum grade of C- or EEES 4240 with a minimum grade of C-

**Term Offered:** Fall

**EEES 4260 Soil Ecology Laboratory**

[1 credit hour]

Laboratory exercises designed to complement the material covered in the lecture.

**Term Offered:** Fall

**EEES 4330 Vertebrate Ecology And Systematics**

[4 credit hours]

Ecology, systematics and conservation of the vertebrates, with special emphasis on forms native to North America.

**Prerequisites:** EEES 2150 with a minimum grade of C-

**Term Offered:** Spring, Fall

**EEES 4350 Ecology and Conservation of Reptiles and Amphibians**

[3 credit hours]

The ecology, diversity, evolution, and conservation of amphibians and reptiles. Lectures will discuss natural history, trait diversity, evolutionary context, and ecological implications of amphibians and reptiles. Hands-on activities include taxonomy and identification of local species, survey and field methods, and discussions of scientific literature. Throughout this course, the biology of amphibians and reptiles will be emphasized in the context of conservation.

**Prerequisites:** EEES 3050 with a minimum grade of C-

**Term Offered:** Spring

**EEES 4355 Ecology and Conservation of Reptiles and Amphibians Lab**

[1 credit hour]

Laboratory and field exercises relevant to the conservation and biology of reptiles and amphibians. This course includes field trips, data collection, and analysis of data and samples. Field trips will focus on standard methods of catching, handling, and marking reptiles and amphibians, along with field techniques relevant to studying the ecology and conservation of reptiles and amphibians.

**Term Offered:** Spring

**EEES 4410 Hydrogeology**

[3 credit hours]

Fundamentals of groundwater/earth interactions are introduced concentrating on physical aspects of groundwater flow with applications to the field of water resources and contaminant investigations.

This course is designed as the fundamental course in groundwater for students who plan to use hydrogeology in their careers, e.g., environmental geologists, civil and environmental engineers, environmental specialists and scientists, and petroleum geologists.

**Prerequisites:** MATH 1750 with a minimum grade of C- or MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C- or MATH 2450 with a minimum grade of C-

**Term Offered:** Spring

**EEES 4450 Hazardous Waste Management**

[3 credit hours]

Environmental regulations concerning hazardous waste, characteristics of hazardous waste and disposal technologies, toxicology, characteristics of organic chemicals and heavy metals, biodegradation, soil science, groundwater contamination, risk assessment, site investigation.

**Prerequisites:** CHEM 1230 with a minimum grade of C- or CHEM 1090 with a minimum grade of C-

**Term Offered:** Fall

**EEES 4480 GIS Applications in ENSC**

[3 credit hours]

An applications course focused on using GIS techniques and applications in environmental problems and research.

**Term Offered:** Fall

**EEES 4490 Remote Sensing of The Environment**

[4 credit hours]

Introduction to theory, methods and techniques used to gather and analyze remote sensor data. Topics range from low altitude air photo interpretation through satellite image acquisition.

**Prerequisites:** GEPL 2010 with a minimum grade of C- or EEES 1010 with a minimum grade of C- or EEES 2100 with a minimum grade of C-

**Term Offered:** Fall

**EEES 4510 Environmental Microbiology**

[3 credit hours]

The diversity of microbial life and activities, the functioning of microbial ecosystems in energy and carbon flow and remediation of polluted environments, and the detection and control of pathogens.

**Prerequisites:** (EEES 2150 with a minimum grade of C- and CHEM 1230 with a minimum grade of C-)

**Term Offered:** Fall

**EEES 4610 Solid Earth Geophysics**

[3 credit hours]

Survey of theory, field applications, interpretation principles of solid earth and exploration geophysics. Two hours lecture, three hours methods laboratory.

**Prerequisites:** (PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of D- and PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and MATH 1850 with a minimum grade of D- and MATH 1860 with a minimum grade of D-)

**Term Offered:** Spring

**EEES 4650 Geology Field Course**

[1-4 credit hours]

Intensive field studies in various areas of geologic interest. Studies may involve various geologic field methods and descriptive techniques. Course may be repeated multiple times. Fall and Spring.

**Prerequisites:** EEES 1010 with a minimum grade of C- or EEES 2100 with a minimum grade of C-

**EEES 4730 Aquatic Ecology**

[3 credit hours]

The biology of populations, communities and ecosystems with emphasis on aquatic environments. Includes the application of principles and theory from aquatic ecology to help understand and solve management problems in aquatic systems.

**Prerequisites:** EEES 3050 with a minimum grade of C-

**Term Offered:** Spring, Fall

**EEES 4740 Aquatic Ecology Laboratory**

[1 credit hour]

Laboratory exercises on the biology of aquatic populations, communities and ecosystems.

**Corequisites:** EEES 4730**Term Offered:** Spring, Fall**EEES 4750 Conservation Biology**

[3 credit hours]

The application of principles of ecology, biogeography, genetics, economics, philosophy and other disciplines to the study and maintenance of biological diversity in temperate, subtropical and tropical systems.

**Prerequisites:** EEES 3050 with a minimum grade of C-**Term Offered:** Spring, Fall**EEES 4755 Conservation Biology Lab**

[1 credit hour]

Laboratory and field exercises relevant to the conservation biology of populations, communities and ecosystems. This course includes field trips, sample analyses and computer-based approaches to biodiversity inventories and reserve design.

**Prerequisites:** EEES 4750 (may be taken concurrently) with a minimum grade of C-**Term Offered:** Spring, Fall**EEES 4760 Landscape Ecology**

[3 credit hours]

A general introduction to the theory and practice of landscape ecology, including landscape-analysis, pattern-process relationship, and potential management applications at multiple spatial and temporal scales.

**Prerequisites:** EEES 3050 with a minimum grade of C-**Term Offered:** Spring, Fall**EEES 4790 Ecology Field Trip**

[2-4 credit hours]

Field study of globally significant ecosystem(s), including analysis of structural and functional relationship within and between ecosystems. Opportunities for individual student projects. Prerequisite: EEES 3050 or equivalent.

**Prerequisites:** EEES 3050 with a minimum grade of C-**Term Offered:** Spring, Summer**EEES 4850 Dimensions of Sustainability**

[3 credit hours]

Dimensions of Sustainability investigates the interactions of human activities with the natural function of the physical and biological systems of Earth. Readings and discussions will evaluate individual issues associated with sustainability, and the ethical responsibility to future generations for stewardship of the global ecosystem and human social structure.

**Term Offered:** Spring, Fall**EEES 4910 Directed Research**

[1-5 credit hours]

Research under guidance of faculty member. An acceptable thesis is required for credit toward major.

**Term Offered:** Spring, Summer, Fall**EEES 4920 Senior Geology Seminar**

[2 credit hours]

Survey of geology at a senior level using readings, class discussions and some lectures. The final exam will be one of the assessment measures for the Geology Program.

**Term Offered:** Spring**EEES 4940 Internship**

[1 credit hour]

The student identifies and communicates with a community professional to earn a short-term, volunteer or paid position that will provide practical experience relevant to the student's plan of study. Student must enroll during the term service is performed.

**Term Offered:** Spring, Summer, Fall**EEES 4960 Senior Seminar**

[1 credit hour]

The intent of the course is to provide senior students with an opportunity to identify relevant positions, create appropriate resumes/CVs and cover letters, and develop necessary interview skills as they plan for their professional careers. Prerequisite: senior standing in ENST, ENSC, GEOL, or BIOL, requiring permission of instructor.

**Term Offered:** Spring, Fall**EEES 4970 Senior Environmental Capstone**

[3 credit hours]

A project-based capstone course focused on integration, synthesis and applications of course work students have taken in their program of study. Departmental majors with different academic backgrounds work in small teams to complete a practical, interdisciplinary project for a client culminating in a scope of work, team-presentation and project report. Clients might include a conservation organization, governmental agency, private industry, school, or other.

**Prerequisites:** EEES 3050 with a minimum grade of C-**Term Offered:** Spring, Fall**EEES 4980 Special Topics: Advanced Undergraduate**

[1-4 credit hours]

An advanced undergraduate course covering some aspect of the environmental sciences not covered in the formal upper-division undergraduate curriculum. Students may repeat the course for different topics.

**Term Offered:** Spring, Summer, Fall**EEES 4990 Independent Study: Advanced Undergraduate**

[1-4 credit hours]

Student selects an appropriate approved subject for individualized study and prepares a report or gives equivalent evidence of mastery of the selected subject.

**Term Offered:** Spring, Summer, Fall

## Exercise Science (EXSC)

### EXSC 1460 Fundamentals of Anatomy and Physiology Lab

[1 credit hour]

Laboratory sessions designed to provide the fundamentals of anatomy and physiology of the cell, tissues, and major organ systems of the human body using a systemic approach. Topics include scientific method, anatomical terminology, the cell, the four tissue types, and the eleven organ systems of the human body.

**Corequisites:** EXSC 1560

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

### EXSC 1560 Fundamentals of Anatomy and Physiology

[3 credit hours]

This course describes the fundamentals of anatomy and physiology of the cell, tissues, and major organ systems of the human body using a systemic approach. Topics include anatomical terminology, homeostasis, the cell, the four tissue types, and the eleven organ systems of the human body.

**Corequisites:** EXSC 1460

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

### EXSC 2460 Human Anatomy And Physiology I Lab

[1 credit hour]

Laboratory exercise in anatomical terminology, cell division and transport, histology, and dissection, identification, and physiology of the skeletal system, skeletal muscle system, and nervous system; including the eye and ear.

**Corequisites:** EXSC 2560

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

### EXSC 2470 Human Anatomy And Physiology II Lab

[1 credit hour]

Laboratory exercises in endocrine, cardiovascular, respiratory, digestive, lymphatic, urinary, and reproductive anatomy, histology, physiology, including computer assisted experiments.

**Corequisites:** EXSC 2570

**Term Offered:** Spring, Summer, Fall

### EXSC 2510 Human Anatomy

[3 credit hours]

An integrated study of both regional anatomy and musculoskeletal, cardiovascular, lymphatic, respiratory, neurologic, digestive, renal, endocrine and reproductive systems. Required for students in exercise science and allied health professional programs.

**Prerequisites:** KINE 1700 with a minimum grade of C or EXSC 1700 with a minimum grade of C

**Corequisites:** EXSC 2520

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

### EXSC 2520 Human Anatomy Lab

[1 credit hour]

Laboratory exercises in musculoskeletal, neurological, cardiovascular and respiratory anatomy.

**Corequisites:** EXSC 2510

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

### EXSC 2530 Human Physiology

[3 credit hours]

This course provides foundational information on human physiology. Emphasis is placed on cell physiology, metabolism, as well as the musculoskeletal, cardiovascular, respiratory, endocrine, and immune systems in the maintenance of normal body function.

**Prerequisites:** (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C) or (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C)

**Term Offered:** Spring, Summer, Fall

### EXSC 2540 Human Physiology Lab

[1 credit hour]

Laboratory exercises in musculoskeletal, neurological, cardiovascular and respiratory physiology.

**Corequisites:** EXSC 2530

**Term Offered:** Spring, Summer, Fall

### EXSC 2560 Anatomy and Physiology I

[3 credit hours]

Anatomy and physiology of the human body. Study of cells, tissues, special senses, and the skeletal, muscle, and nervous systems.

**Corequisites:** EXSC 2460

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

### EXSC 2570 Human Anatomy and Physiol II

[3 credit hours]

Anatomy and physiology of human endocrine, blood, cardiovascular, lymphatic, respiratory, digestive, urinary and electrolyte, and reproductive systems.

**Prerequisites:** (KINE 2460 with a minimum grade of C and KINE 2560 with a minimum grade of C) or (EXSC 2460 with a minimum grade of C and EXSC 2560 with a minimum grade of C)

**Corequisites:** EXSC 2470

**Term Offered:** Spring, Summer, Fall

### EXSC 2580 Human Pathophysiology For Health Care

[3 credit hours]

Study of pathology and general health management of diseases and injuries across the life span. Topics include etiology, symptoms, and the physical and psychological reactions to diseases and injuries of organ systems.

**Prerequisites:** (KINE 2460 with a minimum grade of C and KINE 2470 with a minimum grade of C and KINE 2560 with a minimum grade of C and KINE 2570 with a minimum grade of C) or (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C) or (EXSC 2460 with a minimum grade of C and EXSC 2470 with a minimum grade of C and EXSC 2560 with a minimum grade of C and EXSC 2570 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C) or (EXSC 1560 with a minimum grade of C and EXSC 1460 with a minimum grade of C)

**Term Offered:** Spring, Fall

**EXSC 2590 Microbiology and Infectious Diseases**

[3 credit hours]

This course describes and differentiates basic Microbiology topics as well as covering bacterial, viral, and protozoan infections within various body systems.

**Prerequisites:** BIOL 2150 with a minimum grade of C or BIOL 2170 with a minimum grade of C or EEES 2150 with a minimum grade of C or KINE 2510 with a minimum grade of C or KINE 2530 with a minimum grade of C or KINE 2560 with a minimum grade of C or EXSC 2510 with a minimum grade of C or EXSC 2530 with a minimum grade of C or EXSC 2560 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**EXSC 3200 Advanced Human Anatomy**

[3 credit hours]

An elective course that applies musculoskeletal anatomy to human movement, function, injury evaluation and rehabilitation through in cadaver observation and dissection.

**Prerequisites:** (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C and KINE 2530 with a minimum grade of C and KINE 2540 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C) or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C)

**Term Offered:** Spring, Fall

**EXSC 3240 Concepts of Exercise Fitness and Health Strategies**

[3 credit hours]

This focus of this course is the self-exploration of the importance of regular physical activity including cardiovascular and muscular exercise on maintaining physical fitness and wellness. Students will conduct fitness assessments. Min. grade of C for HPFP concentration.

**Prerequisites:** EXSC 1560 with a minimum grade of C and EXSC 1460 with a minimum grade of C or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C)

**Term Offered:** Spring, Summer, Fall

**EXSC 3520 Applied Exercise Physiology**

[3 credit hours]

This course will provide information related to the physiological responses of the human organism to exercise and exercise training. Emphasis will also be placed on the role exercise plays in health and disease prevention.

**Prerequisites:** KINE 2530 with a minimum grade of C or KINE 2570 with a minimum grade of C or EXSC 2530 with a minimum grade of C or EXSC 2570 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**EXSC 3530 Applied Exercise Physiology Laboratory**

[1 credit hour]

This course is the laboratory component of the applied exercise physiology course. Emphasis will be placed on the concepts learned in lecture. This will occur through hands-on activities and experiments involving various forms of exercise testing and the use of standardized equipment.

**Corequisites:** EXSC 3520

**Term Offered:** Spring, Summer, Fall

**EXSC 3580 Exercise Pathophysiology**

[3 credit hours]

A discovery of the pathophysiology of organ systems, concentrating on metabolic, cardiovascular, respiratory, endocrine, muscle, and gastrointestinal systems with exercise as a guiding element of discussion.

**Prerequisites:** EXSC 2530 with a minimum grade of C

**Term Offered:** Spring, Fall

**EXSC 3680 Sport and Exercise Pharmacology**

[3 credit hours]

Provide the basics of pharmacology related to sport and exercise including: pharmacokinetics, indications and contradictions of various drugs and legal concerns related to using therapeutic and non-therapeutic drugs. Min. grade of C for HPFP concentration.

**Prerequisites:** (KINE 2560 with a minimum grade of C and KINE 2460 with a minimum grade of C and KINE 2570 with a minimum grade of C and KINE 2470 with a minimum grade of C) or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C) or (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C and KINE 2530 with a minimum grade of C and KINE 2540 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C)

**Term Offered:** Spring

**EXSC 3830 Principles of Strength Conditioning**

[3 credit hours]

This course provides students with a fundamental understanding of muscular strength conditioning principles and the application of these principles to exercise programming relevant to physical activity and athletic performance. Min. grade of C for HPFP concentration.

**Prerequisites:** (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C and KINE 2530 with a minimum grade of C and KINE 2540 with a minimum grade of C and KINE 3520 with a minimum grade of C and KINE 3530 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C) or (KINE 2560 with a minimum grade of C and KINE 2460 with a minimum grade of C and KINE 2570 with a minimum grade of C and KINE 2470 with a minimum grade of C and KINE 3520 with a minimum grade of C and KINE 3530 with a minimum grade of C) or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C)

**Term Offered:** Fall



**EXSC 3850 Cardiac Dysrhythmia Interpretation**

[3 credit hours]

This course examines cardiac anatomy, electrophysiology and basic cardiac rhythms with an emphasis on the recognition and interpretation of cardiac dysrhythmias. Min. grade of C for HPFP concentration.

**Prerequisites:** (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C and KINE 2530 with a minimum grade of C and KINE 2540 with a minimum grade of C and KINE 3520 with a minimum grade of C and KINE 3530 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C) or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C)

**Corequisites:** EXSC 3860**Term Offered:** Fall**EXSC 3860 Cardiac Dysrhythmia Lab**

[1 credit hour]

This course is the practical application of the techniques required to administer a 12 lead EKG at rest and during exercise. Students will record multiple EKG's and interpret the rhythm. Min. grade of C for HPFP concentration.

**Prerequisites:** (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C and KINE 2530 with a minimum grade of C and KINE 2540 with a minimum grade of C and KINE 3520 with a minimum grade of C and KINE 3530 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C) or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C)

**Corequisites:** EXSC 3850**Term Offered:** Fall**EXSC 3950 Research Design in Exercise Science**

[3 credit hours]

This course emphasizes the design, analysis and interpretation of qualitative and quantitative research methods in the areas of athletic training, exercise science and other health-related fields. Min. grade of C or better for HPFP concentration.

**Prerequisites:** MATH 2600 with a minimum grade of D- or RESM 4100 with a minimum grade of D-

**Term Offered:** Spring, Fall**EXSC 4140 Fitness Internship I**

[4 credit hours]

Students will actively engage and participate in the day-to-day functions including operational, managerial and client assessments in a health, wellness or fitness facility (16 hours/week). Min. grade of C for HPFP concentration.

**Prerequisites:** (KINE 3850 with a minimum grade of C and KINE 3860 with a minimum grade of C and KINE 4850 with a minimum grade of C and KINE 4860 with a minimum grade of C) or (EXSC 3850 with a minimum grade of C and EXSC 3860 with a minimum grade of C and EXSC 4850 with a minimum grade of C and EXSC 4860 with a minimum grade of C)

**Term Offered:** Fall**EXSC 4210 Exercise Facility Management**

[3 credit hours]

Students will develop an understanding of the skills necessary for marketing, promoting and managing various fitness, wellness and rehabilitation facilities. Min. grade of C for HPFP concentration.

**Term Offered:** Spring**EXSC 4250 Readings in Exercise Biology**

[3 credit hours]

Faculty and student directed readings of original research in Exercise Biology, along with laboratory demonstrations. Readings will focus on how changes in physical activity influence the biology of skeletal muscle.

**Term Offered:** Spring, Fall**EXSC 4540 Applied Biomechanics**

[3 credit hours]

This course focuses on the application of biomechanics concepts to the acquisition and refinement of fundamental movement patterns, basic functional skills and sport activities. Such topics as locomotion, balance and the biomechanical basis of injury are examined.

**Prerequisites:** (KINE 2510 with a minimum grade of C and KINE 2530 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2530 with a minimum grade of C)

**Term Offered:** Spring, Fall**EXSC 4550 Applied Biomechanics Lab**

[1 credit hour]

This course is the laboratory component of the applied biomechanics course. Emphasis will be placed on the application of the concepts learned in lecture to rehabilitation, sports injury, exercise, and sport situations. This will occur through hands-on activities and experiments involving contemporary forms of biomechanical instrumentation.

**Corequisites:** EXSC 4540**Term Offered:** Spring, Fall**EXSC 4640 Neurological And Pathological Foundations Of Rehabilitation**

[3 credit hours]

Study of neurological control of normal movement and the implications of various medical pathologies for rehabilitation. Emphasis on inflammatory processes, metabolic and vascular disturbances, traumatic injuries, nutritional deficiencies, neoplasms, degenerative conditions and congenital disorders.

**Prerequisites:** (KINE 2510 with a minimum grade of C or KINE 2560 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C or EXSC 2560 with a minimum grade of C)

**Term Offered:** Spring, Summer, Fall

**EXSC 4830 Principles of Endurance Conditioning**

[3 credit hours]

This course is intended to prepare students with a fundamental understanding of endurance conditioning principles and the application of these principles to exercise programming relevant to physical activity and athletic performance.

**Prerequisites:** (KINE 2510 with a minimum grade of C and KINE 2520 with a minimum grade of C and KINE 2530 with a minimum grade of C and KINE 2540 with a minimum grade of C and KINE 3520 with a minimum grade of C and KINE 3530 with a minimum grade of C) or (EXSC 2510 with a minimum grade of C and EXSC 2520 with a minimum grade of C and EXSC 2530 with a minimum grade of C and EXSC 2540 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C) or (KINE 2560 with a minimum grade of C and KINE 2460 with a minimum grade of C and KINE 2570 with a minimum grade of C and KINE 2470 with a minimum grade of C and KINE 3520 with a minimum grade of C and KINE 3530 with a minimum grade of C) or (EXSC 2560 with a minimum grade of C and EXSC 2460 with a minimum grade of C and EXSC 2570 with a minimum grade of C and EXSC 2470 with a minimum grade of C and EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C)

**Term Offered:** Fall**EXSC 4840 Fitness Internship II**

[4 credit hours]

Students will actively engage and participate in the day-to-day functions including operational, managerial and client assessments in a health, wellness or fitness facility (16 hours/week). Min. grade of C for HPFP concentration.

**Prerequisites:** KINE 4140 with a minimum grade of C or EXSC 4140 with a minimum grade of C

**Term Offered:** Spring**EXSC 4850 Clinical Exercise Testing**

[3 credit hours]

The purpose of this course is to provide students with an understanding of the relationship between exercise and chronic disease, an understanding of the mechanisms and adaptations by which exercise influences the disease process, and an understanding of the role and importance of exercise testing and training in the prevention, evaluation and treatment of these chronic diseases. Min. grade of C for HPFP concentration.

**Prerequisites:** (KINE 3850 with a minimum grade of C and KINE 3860 with a minimum grade of C) or (EXSC 3850 with a minimum grade of C and EXSC 3860 with a minimum grade of C)

**Term Offered:** Spring**EXSC 4860 Clinical Exercise Testing Lab**

[1 credit hour]

The purpose of this course is to provide students with the skills needed to perform a 12 lead electrocardiogram stress test on their own. Min. grade of C for HPFP concentration.

**Prerequisites:** EXSC 3520 with a minimum grade of C and EXSC 3530 with a minimum grade of C

**Corequisites:** EXSC 4850**Term Offered:** Spring**EXSC 4900 Human Performance Seminar**

[1-3 credit hours]

Classroom and laboratory analysis of current research in varied topic areas.

**Term Offered:** Spring, Fall**EXSC 4940 Internship-Practicum**

[2-15 credit hours]

Clinical experience in locations both inside and outside the university setting. Placement depends on area of study.

**Term Offered:** Summer**EXSC 4990 Independent Study In Exercise Science**

[1-3 credit hours]

Directed individual study. Specialty title, seminar sheet and permission of instructor required.

**Term Offered:** Spring, Summer, Fall**EXSC 5110 Measurement And Statistical Inference In Human Performance**

[3 credit hours]

Application of measurement and statistical inference to human performance testing and research. Includes descriptive and inferential statistics, principles of test construction and introduction to authentic assessment in public schools.

**Term Offered:** Spring**EXSC 5250 Readings In Exercise Biology**

[3 credit hours]

Faculty and student directed readings of original research in Exercise Biology. Readings will focus on how changes in physical activity influence the biology of skeletal muscle.

**Term Offered:** Spring, Fall**EXSC 6100 Physiology of Exercise**

[3 credit hours]

This course is designed to provide an understanding of the mechanisms of the physiological responses to exercise. Emphasis will be placed on adaptations to exercise training and the role of exercise in health and disease.

**Term Offered:** Fall**EXSC 6130 Biomechanics Of Human Motion**

[3 credit hours]

This course provides a basic overview of the principles of biomechanics as they apply to human movement. In-depth discussion and lab activities focus on the application of these principles to such topics as muscle function, locomotion, balance, mechanisms of injury and ergonomics.

**Term Offered:** Spring, Fall**EXSC 6200 Biomechanical Instrumentation**

[3 credit hours]

Provides students with experience in the research and clinical use of videography, force and pressure plates, electromyography and other systems in applied biomechanics. Emphasis on hands-on lab experience and topics related to data collection and signal processing.

**Prerequisites:** KINE 6130 with a minimum grade of D- or EXSC 6130 with a minimum grade of D-

**Term Offered:** Spring

**EXSC 6230 Scientific Writing And Research Methods**

[3 credit hours]

Principles and issues involved in the design and conduct of research in exercise science: critical evaluation, research design, development of a research proposal, grant acquisition, and compliance with institutional and federal guidelines on the use of humans and animals.

**Term Offered:** Fall**EXSC 6420 Cardiopulmonary Exercise Physiology**

[3 credit hours]

The responses and adaptations of the cardiovascular and pulmonary systems to exercise in healthy individuals.

**Prerequisites:** KINE 6100 with a minimum grade of D- or EXSC 6100 with a minimum grade of D-

**Term Offered:** Spring, Fall**EXSC 6430 Environmental Physiology**

[3 credit hours]

Physiological responses and adaptations to extreme environments.

**Term Offered:** Fall**EXSC 6460 Readings in Cardiovascular Physiology**

[3 credit hours]

This is a faculty directed examination of current research in Cardiovascular Physiology. Emphasis is placed on the role of physical activity on the prevention and/or treatment of cardiovascular treatment.

**Term Offered:** Spring, Fall**EXSC 6540 Laboratory Techniques In Exercise Physiology**

[3 credit hours]

This course covers theoretical and practical knowledge for the assessment of exercise metabolism, cardiorespiratory function, body composition, thermoregulation and skeletal muscle function. Hands-on data collection will be emphasized.

**Term Offered:** Fall**EXSC 6550 Lab Techniques In Exercise Biology**

[3 credit hours]

The course provides students with theoretical and practical knowledge for assessing cellular and molecular responses to exercise and inactivity. Emphasis will be placed on laboratory safety, reagent preparation, cell culture techniques, and tissue analysis.

**Prerequisites:** (KINE 6100 with a minimum grade of D- and KINE 6540 with a minimum grade of D-) or (EXSC 6100 with a minimum grade of D- and EXSC 6540 with a minimum grade of D-)

**EXSC 6720 Advanced Clinical Anatomy**

[2 credit hours]

A cadaver anatomy course focusing on the extremities. Emphasis will be placed on the link between anatomical structure, orthopedic injuries, and clinical practice.

**Term Offered:** Fall**EXSC 6960 Masters Thesis In Exercises Science**

[1-4 credit hours]

Independence research in Exercise Science completed as part of the requirements for the Master of Science in Exercise Science degree.

**Term Offered:** Spring, Summer, Fall**EXSC 6990 Independent Study in Exercise Science**

[1-4 credit hours]

Faculty supervised independent reading, laboratory research, field experience and other activities not suited for class instruction.

**Term Offered:** Spring, Summer, Fall**EXSC 7110 Measurement And Statistical Inference In Human Performance**

[3 credit hours]

Application of measurement and statistical inference to human performance testing and research. Includes descriptive and inferential statistics, principles of test construction and introduction to authentic assessment in public schools.

**Term Offered:** Spring**EXSC 7250 Readings In Exercise Biology**

[3 credit hours]

Faculty and student directed readings of original research in Exercise Biology. Readings will focus on how changes in physical activity influence the biology of skeletal muscle.

**Term Offered:** Spring, Fall**EXSC 8100 Physiology of Exercise**

[3 credit hours]

This course is designed to provide an understanding mechanisms of the physiological responses to exercise. Emphasis will be placed on adaptations to exercise training and the role of exercise in health and disease.

**Term Offered:** Fall**EXSC 8130 Biomechanics Of Human Motion**

[3 credit hours]

This course provides a basic overview of the principles of biomechanics as they apply to human movement. In-depth discussion and lab activities focus on the application of these principles to such topics as muscle function, locomotion, balance, mechanisms of injury and ergonomics.

**Term Offered:** Spring, Fall**EXSC 8200 Biomechanical Instrumentation**

[3 credit hours]

Provides students with experience in the research and clinical use of videography, force and pressure plates, electromyography and other systems in applied biomechanics. Emphasis on hands-on lab experience and topics related to data collection and signal processing.

**Prerequisites:** (KINE 6130 with a minimum grade of D- and KINE 8130 with a minimum grade of D-) or (EXSC 6130 with a minimum grade of D- and EXSC 8130 with a minimum grade of D-)

**Term Offered:** Spring**EXSC 8230 Scientific Writing And Research Methods**

[3 credit hours]

Principles and issues involved in the design and conduct of research in exercise science: critical evaluation, research design, development of a research proposal, grant acquisition, and compliance with institutional and federal guidelines on the use of humans and animals.

**Term Offered:** Fall

**EXSC 8420 Cardiopulmonary Exercise Physiology**

[3 credit hours]

The responses and adaptations of the cardiovascular and pulmonary systems to exercise in healthy individuals.

**Prerequisites:** KINE 8100 with a minimum grade of D- or EXSC 8100 with a minimum grade of D-

**Term Offered:** Spring, Fall

**EXSC 8430 Environmental Physiology**

[3 credit hours]

Physiological responses and adaptations to extreme environments.

**Term Offered:** Fall

**EXSC 8460 Readings in Cardiovascular Physiology**

[3 credit hours]

This is a faculty directed examination of current research in Cardiovascular Physiology. Emphasis is placed on the role of physical activity on the prevention and/or treatment of cardiovascular treatment.

**Term Offered:** Spring, Fall

**EXSC 8540 Laboratory Techniques In Exercise Physiology**

[3 credit hours]

This course covers theoretical and practical knowledge for the assessment of exercise metabolism, cardiorespiratory function, body composition, thermoregulation and skeletal muscle function. Hands-on data collection will be emphasized.

**Term Offered:** Fall

**EXSC 8550 Lab Techniques In Exercise Biology**

[3 credit hours]

The course provides students with theoretical and practical knowledge for assessing cellular and molecular responses to exercise and inactivity. Emphasis will be placed on laboratory safety, reagent preparation, cell culture techniques, and tissue analysis.

**Prerequisites:** (KINE 8100 with a minimum grade of D- and KINE 8540 with a minimum grade of D-) or (EXSC 8100 with a minimum grade of D- and EXSC 8540 with a minimum grade of D-)

**EXSC 8720 Anatomical Concepts for Clinical Practice**

[3 credit hours]

A cadaver anatomy course focusing on the extremities. Emphasis will be placed on the link between anatomical structure, orthopedic injuries, and clinical practice.

**Term Offered:** Fall

**EXSC 8960 Doctoral Dissertation In Exercise Science**

[1-12 credit hours]

Directed research towards completion of the doctoral degree. Students may register for credit in more than one semester. Total dissertation credit toward the degree may not exceed 16 hours.

**Term Offered:** Spring, Summer, Fall

**EXSC 8990 Independent Study In Exercise Science**

[1-4 credit hours]

Faculty supervised independent reading, laboratory research, field experience and other activities not suited for class instruction.

**Term Offered:** Spring, Summer, Fall

## Film (FILM)

**FILM 1310 Introduction To Film**

[3 credit hours]

Introduction to the history and interpretation of cinema as art form, with emphasis on discovering how meaning is encoded in film at the levels of shot, sequence and narrative construction. (Not recommended or required for majors.)

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

**FILM 2230 Creative Approaches to Cinema**

[3 credit hours]

An introductory course focused on visual storytelling through the examination and construction of the still image. Emphasis on interpreting photography, paintings and stories designed within the construct of the single image. This course uses lectures, readings and in-class exercises to produce creative narratives through photo-romans. Students must have taken or be co-enrolled in Critical Approaches to Cinema, Film 2340.

3 credit hours.

**Corequisites:** FILM 2330

**Term Offered:** Fall

**FILM 2310 Film I**

[3 credit hours]

An intensive production/seminar course for creative film making utilizing 16mm celluloid film. Individual and group production exercises. Students must purchase supplies.

**Prerequisites:** FILM 2340 with a minimum grade of C or FILM 2330 with a minimum grade of C

**Term Offered:** Spring

**FILM 2320 Digital Cinema Production I - WAC**

[3 credit hours]

An intensive production/seminar course exploring digital media as means for creative expression. Students purchase supplies. For majors and minors only, or by permission of instructor. Prerequisites: Grade of C or better in FILM 2330 or FILM 2340. May not take simultaneously with FILM 2310. Writing Intensive (WAC) course. Non-majors seek instructor consent for permit.

**Prerequisites:** FILM 2330 with a minimum grade of C or FILM 2340 with a minimum grade of C

**Term Offered:** Fall

**FILM 2330 Critical Approaches to Cinema**

[3 credit hours]

A critical approach to the development of cinema as an industrial, artistic and ideological practice. Emphasis on theories of film construction and interpretation and the development of analytical skills for cinema studies. Screenings included in class.

**Term Offered:** Spring, Fall

**FILM 2350 Cinema History**

[3 credit hours]

A study of the major movements and authors of Cinema History. Screenings included in class.

**Term Offered:** Spring, Summer, Fall

**FILM 2990 Special Projects**

[1-3 credit hours]

Individual study provides the student an opportunity to work independently on a problem of special interest in Film/Video under the direction of the faculty. For Freshman and Sophomore students.

**FILM 3200 Directing Screen Acting**

[3 credit hours]

This studio course trains students to actively view a scene, assess the effectiveness of script, acting and directing, and discuss it critically. It identifies components of story, script and character - and how to build this with the cast. Focus is placed on characteristics required to play a role, successfully cast actors through auditions, and run an effective rehearsal. Lessons focus on production etiquette, communication, and techniques necessary to film a story.

**Term Offered:** Fall**FILM 3330 Critical Approaches to Cinema II**

[3 credit hours]

Intermediate critical analysis of film, concentrating on a specific style, genre, national cinema of the West, or filmmaker. Emphasis on theories of film construction and interpretation. Screenings included in class. Topics vary, may be repeated to 9 hours.

**Prerequisites:** FILM 2340 with a minimum grade of C or FILM 2330 with a minimum grade of C

**Term Offered:** Spring, Fall**FILM 3350 Screenwriting - WAC**

[3 credit hours]

This course involves practical analysis of screenplays, emphasizing story structure and characterization. Students plan, write and refine story lines before writing actual scripts.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or HON 1010 with a minimum grade of D- or HON 1020 with a minimum grade of D- or ENGL 1180 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**FILM 3370 Documentary Film**

[3 credit hours]

A study of the major movements and authors of Documentary Film. Screenings included in class.

**Prerequisites:** (ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D-) and FILM 2350 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall**FILM 3380 Experimental Film**

[3 credit hours]

A study of the major movements and authors of Experimental Film. Screenings included in class.

**Prerequisites:** (ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D-) and FILM 2350 with a minimum grade of C

**Term Offered:** Spring, Fall**FILM 3390 History of Video Art**

[3 credit hours]

A study of the major movements of the History of Video Art and Installation. Screenings included in class.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 1140 with a minimum grade of D- or ENGL 1150 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D- or FILM 2350 with a minimum grade of C

**Term Offered:** Spring, Fall**FILM 3430 Global Cinema**

[3 credit hours]

A study of the major movements and authors of non-US cinema. Screenings included in class. Topics vary, may be repeated to 9 hours.

**Prerequisites:** FILM 2340 with a minimum grade of C or FILM 2330 with a minimum grade of C

**Term Offered:** Spring, Fall**FILM 3510 Cinematography and Color Grading**

[3 credit hours]

A production/seminar course concentrating on how the language of the image is influenced by camera format fundamentals and color. In-class demonstrations and exercises, as well as outside of class workshops and individual production(s). Majors and minors only.

**Prerequisites:** FILM 2310 with a minimum grade of C and FILM 2320 with a minimum grade of C

**Term Offered:** Spring, Fall**FILM 3530 Animation and Optical Printing**

[3 credit hours]

Intensive production/seminar course in the creation of animation and special effects for film and digital work. Hand-drawn, cut-out, stop-motion, pixilation and various optical effects are explored through in-class exercises and individual productions. Majors and minors only. Interested non-majors should seek instructor permission to enroll.

**Prerequisites:** FILM 2310 with a minimum grade of D-

**Term Offered:** Spring, Fall**FILM 3550 Producing and Production Management**

[3 credit hours]

Inquiry into the financial, logistical, and organizational aspects of film and video production, focusing on the roles of the line producer, production manager, assistant director and their teams. No prerequisite.

**Term Offered:** Spring**FILM 3560 Methods for the Professional Editor**

[3 credit hours]

A production/seminar course that prepares students for professional practice in digital post-production methods and concepts. In-class exercises and individual production work done outside of class are required for the course. Majors and minors only. Interested non-majors should seek instructor permission to enroll.

**Prerequisites:** FILM 2320 with a minimum grade of C

**Term Offered:** Spring, Fall

**FILM 3730 Directing for Camera**

[3 credit hours]

A production/seminar course focusing on directing dramatic scenes for camera with emphasis on effective director/actor communication and the creation of dramatically meaningful camera and actor blocking. Majors and minors only. Interested non-majors should seek instructor permission to enroll.

**Prerequisites:** FILM 2310 with a minimum grade of C and FILM 2320 with a minimum grade of C

**Term Offered:** Spring, Fall

**FILM 3820 Documentary Field Production**

[3 credit hours]

Advanced production class focusing on the unique challenges of field production. Various types of documentary work are explored through field assignments relating to social and scientific subjects. This course includes local and regional production work as well as study abroad options.

**Prerequisites:** FILM 2310 with a minimum grade of D- and FILM 2320 with a minimum grade of D-

**Term Offered:** Spring

**FILM 4220 Media Studies**

[3 credit hours]

Covering issues concerned with film and media history, theory, and criticism and the interrelationship of film to television, radio, print, and/or the Internet. Particular focus of the course can change. Repeatable for credit.

**Prerequisites:** FILM 2340 with a minimum grade of C or FILM 2330 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**FILM 4310 Advanced Production**

[3 credit hours]

A production/seminar course focused on advanced production techniques that intersect celluloid and raw cinema capture. Emphasis on narrative, double system/sync-sound recording, lighting, and editing/coloring/scoring of on-screen drafts. Individual and group project work required inside and outside class. Students may need to purchase supplies. Interested non-majors should seek instructor permission to enroll.

**Prerequisites:** FILM 3510 (may be taken concurrently) with a minimum grade of C or FILM 3560 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Fall

**FILM 4320 Film/Video Workshop**

[3 credit hours]

A production/seminar course for advanced independent production projects, including screenwriting. Regular critiques of work in progress. Requires project proposal and instructor permission for admission. Larger projects may be completed over multiple semesters. May be repeated up to 6 hours.

**Prerequisites:** FILM 3310 with a minimum grade of D- or FILM 3320 with a minimum grade of D- or FILM 3350 with a minimum grade of D- or FILM 3360 with a minimum grade of D-

**Term Offered:** Spring

**FILM 4330 Critical Approaches to Cinema III**

[3 credit hours]

Advanced critical analysis of film, concentrating on a specific style, genre, national cinema of the West, or filmmaker. Emphasis on theories of film construction and interpretation. Screenings included in class. Topics vary, may be repeated to 9 hours.

**Prerequisites:** FILM 2330 with a minimum grade of C

**Term Offered:** Spring, Fall

**FILM 4940 Internship**

[1-6 credit hours]

Internship with an approved program, company, or agency in Film. Video or television. (repeatable for 6 credit hours)

**Term Offered:** Spring, Summer, Fall

**FILM 4950 Honors Thesis**

[3 credit hours]

Research or a creative project on a topic in Film or Video. Required of all BA candidates seeking department honors. (Repeatable for 6 credit hours.)

**Term Offered:** Spring, Summer, Fall

**FILM 4990 Special Projects**

[1-3 credit hours]

Individual study provides the student an opportunity to work independently on a problem of special interest in Film/Video under the direction of the faculty. For Junior and senior students.

**Term Offered:** Spring, Summer, Fall

## Finance (FINA)

**FINA 2000 Personal Investing**

[3 credit hours]

This course features a real time stock market simulation. Students will be able to trade securities and track their performance throughout the semester. Learn about different types of investments including: stocks, bonds, mutual funds, real estate, options, and futures. Not applicable toward finance major.

**Term Offered:** Spring, Summer, Fall

**FINA 3060 Personal Finance**

[3 credit hours]

This course covers the fundamentals of personal finance and will help you make informed decisions in your financial future. Topics included: how to manage credit, planning for retirement, mortgages and home ownership, understanding life insurance, types of mutual funds, personal taxation principles, how loans work, and estate planning. Not applicable toward finance major.

**Term Offered:** Spring, Summer, Fall

**FINA 3480 Investments**

[3 credit hours]

This course introduces history of risk-returns trade-off, investment process, different investment securities and financial markets in which financial assets traded. In addition, modern portfolio theory, risk-return trade-off, and performance evaluation are explained in detail.

**Prerequisites:** BUAD 3040 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**FINA 3500 International Business Finance**

[3 credit hours]

Examines the role of a financial manager in international transactions. The international environment and the role of international asset markets are emphasized.

**Prerequisites:** BUAD 3040 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**FINA 3600 Risk Management**

[3 credit hours]

Investigates non-speculative risks and the methods used to deal with them. Emphasizes on the insurance mechanism. Explores the functional aspect of the insurance operations.

**Prerequisites:** BUAD 3040 with a minimum grade of D-**Term Offered:** Summer, Fall**FINA 3890 Financial Modeling with Excel**

[3 credit hours]

This course help students develop spreadsheet modeling skills necessary to evaluate common financial problems encountered. The course provides hands-on experience in obtaining financial data and using Excel to manipulate and analyze data for a wide variety of subjects in finance.

**Prerequisites:** BUAD 3040 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**FINA 4080 Intermediate Financial Management**

[3 credit hours]

This course explores corporate financial decision making in depth. Topics include financial statement analysis, financial planning, capital budgeting, working capital management, and capital structure.

**Prerequisites:** BUAD 3040 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**FINA 4090 Financial Markets And Institutions**

[3 credit hours]

The course explores operations and functions of financial markets and institutions. The emphasize is on the interest rate theory, the role of the Federal Reserve System and the government in establishing monetary policy and providing regulation, management of institutions, and internationalization.

**Prerequisites:** BUAD 3040 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**FINA 4100 Security Analysis & Portfolio Management**

[3 credit hours]

Emphasizes the importance of portfolio management techniques and evaluation. Techniques of financial statement analysis, economic analysis, industry analysis, theoretical issues of efficient markets, technical analysis and fundamental analysis.

**Prerequisites:** BUAD 3040 with a minimum grade of C**Term Offered:** Spring, Fall**FINA 4200 Fixed Income Securities**

[3 credit hours]

This course explores the fixed income securities markets, institutions, and instruments. We will analyze the pricing, risks, and risk management of fixed income securities.

**Prerequisites:** BUAD 3040 with a minimum grade of C**Term Offered:** Spring**FINA 4340 Derivatives Securities and Markets**

[3 credit hours]

This course explores the derivative securities markets and instruments. It covers the valuation, risks, and risk management aspect of derivative securities.

**Prerequisites:** BUAD 3040 with a minimum grade of C**Term Offered:** Spring, Fall**FINA 4480 Student Managed Portfolio**

[3 credit hours]

Course provides selected students active portfolio management training utilizing an endowed portfolio. Student Portfolio Managers apply equity selection analysis and portfolio risk analytics, with fiduciary responsibilities.

**Prerequisites:** FINA 3480 with a minimum grade of C**Term Offered:** Spring, Fall**FINA 4670 Advanced Financial Management**

[3 credit hours]

Applies financial analysis techniques to real-world problems using computer simulations and case studies. Topics include capital budgeting, working capital management, cost of capital, capital structure, leasing, valuation of levered firms, and options.

**Prerequisites:** FINA 3480 with a minimum grade of D- and FINA 4080 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**FINA 4900 Seminar In Finance**

[3 credit hours]

Seminar course in advanced and specialized topics. Current readings from finance journals. Written paper required.

**Prerequisites:** (FINA 3480 with a minimum grade of D- and FINA 4080 with a minimum grade of D-)**Term Offered:** Spring, Fall**FINA 4940 Finance Internship**

[1-3 credit hours]

This course explores special topics in the field of finance in detail. Topics varies and chosen as need required.

**Prerequisites:** BUAD 3040 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**FINA 4990 Independent Study: Readings And Research In Finance**

[1-3 credit hours]

An independent, professor supervised, course dealing with an in depth investigation of a financial area not covered adequately in another listed course.

**Prerequisites:** (FINA 3480 with a minimum grade of D- and FINA 4080 with a minimum grade of D- and FINA 4090 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall

## Foreign Language (FLAN)

**FLAN 1970 Special Topics**

[4 credit hours]

Special topics which vary semester to semester. Course may be repeated when topic varies.

**Term Offered:** Spring, Fall

**FLAN 1980 Special Topics**

[4 credit hours]

Special topics which vary semester to semester. Course may be repeated when topic varies.

**Term Offered:** Spring, Fall**FLAN 2700 World Cultures through Literature and Cinema in Translation**

[3 credit hours]

This course introduces students to World Cultures through selected translated texts and films from various European, Latin American, African, Asian, and Middle East cultures. Among the themes considered are race, gender, class, immigration, and colonialism. Taught in English. 3 credit hours.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity

**FLAN 2970 Special Topics**

[3 credit hours]

Special topics which vary semester to semester. Course may be repeated when topic varies.

**Term Offered:** Spring, Fall**FLAN 2980 Special Topics**

[3 credit hours]

Special topics which vary semester to semester. Course may be repeated when topic varies.

**Term Offered:** Spring, Fall**FLAN 3440 Intercultural Communication: Principles And Practice**

[4 credit hours]

This course offers a survey of major concepts in intercultural communication. It emphasizes a balance between theoretical and practical learning opportunities and seeks to promote intercultural understanding.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**FLAN 3980 Special Topics in Foreign Languages**

[0-6 credit hours]

Study of a selected topic in language, literature, or culture.

**Term Offered:** Spring, Summer, Fall**FLAN 4160 Teaching Colloquia**

[3 credit hours]

A course in the theory of second language acquisition and practice of teaching foreign / second languages in general.

**Term Offered:** Spring, Summer, Fall**FLAN 4940 Internship in Foreign Languages**

[0-12 credit hours]

Educational work experience in a pre-approved professional field.

**Term Offered:** Spring, Fall**FLAN 4980 Special Topics in Foreign Languages**

[0-6 credit hours]

Study of a selected topic in foreign languages. May be repeated when topic varies.

**Term Offered:** Spring, Summer, Fall**FLAN 4990 Independent Study in World Languages and Cultures**

[3 credit hours]

Independent study of a selected topic in foreign languages, developed in consultation with a faculty member. 3 hours. May be repeated with a different topic.

**Term Offered:** Spring, Summer, Fall

## French (FREN)

**FREN 1080 Culture And Commerce In The French-Speaking World**

[3 credit hours]

A study of the French-speaking world with emphasis on the relationship between its culture and its business and economic institutions and practices. Taught in English. (Not for major credit.)

**Term Offered:** Fall

Core Arts &amp; Humanities

**FREN 1090 French & Francophone Culture In The Modern World**

[3 credit hours]

This course focuses on modern French and Francophone culture and their historical and geographical sources. Taught in English. (Not for major credit.)

**Term Offered:** Spring

Core Arts &amp; Humanities

**FREN 1110 Elementary French I**

[4 credit hours]

A comprehensive introductory course in French language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (not for major credit)

**Term Offered:** Spring, Fall**FREN 1120 Elementary French II**

[4 credit hours]

A comprehensive introductory course in French language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (not for major credit)

**Prerequisites:** FREN 1110 with a minimum grade of D- or French Language Placement with a score of 1120

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**FREN 2140 Intermediate French I**

[3 credit hours]

Review and further development of command of the French language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (not for major credit)

**Prerequisites:** FREN 1120 with a minimum grade of D- or FREN 1500 with a minimum grade of D- or French Language Placement with a score of 2140

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities



**FREN 2150 Intermediate French II**

[3 credit hours]

Further review and development of command of the French language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (not for major credit)

**Prerequisites:** FREN 2140 with a minimum grade of D- or French Language Placement with a score of 2150

**Term Offered:** Spring, Summer, Fall  
Core Arts & Humanities

**FREN 3010 Conversation And Composition I**

[3 credit hours]

Idiomatic conversation practice, dictation and pronunciation drill as well as development of practical writing skills.

**Prerequisites:** FREN 2150 with a minimum grade of D- or French Language Placement with a score of 3000

**Term Offered:** Fall

**FREN 3020 Conversation And Composition II**

[3 credit hours]

Further aural/oral development with emphasis on the mechanics of writing in French and the organization of ideas. A writing-intensive course.

**Prerequisites:** FREN 3010 with a minimum grade of D-

**Term Offered:** Spring

**FREN 3170 Business French**

[3 credit hours]

An introduction to the language of the French-speaking world, with emphasis on business and commerce.

**Prerequisites:** FREN 2150 with a minimum grade of D-

**FREN 3210 Selected French and Francophone Readings I**

[3 credit hours]

Selected French and Francophone short stories and novels.

**Prerequisites:** FREN 2150 with a minimum grade of D-

**Term Offered:** Fall

**FREN 3220 Selected French and Francophone Prose and Poetry, Readings II**

[3 credit hours]

French and Francophone readings taken from drama, poetry, and prose of 19th and 20th centuries.

**Prerequisites:** FREN 2150 with a minimum grade of D-

**Term Offered:** Spring

**FREN 3400 Cross-Cultural Understanding**

[3 credit hours]

An examination of the notions of culture, multiculturalism and Francophone cultures. Course content emphasizes issues of race, class and gender in U.S. and Francophone contexts.

**Term Offered:** Spring, Fall  
Multicultural Non-US Diversity

**FREN 3410 Survey Of French Civilization I**

[3 credit hours]

A study of the many ways in which France has contributed to world culture through architecture, painting, sculpture, music, literature, folklore, science, philosophy and education.

**Prerequisites:** FREN 2150 with a minimum grade of D-

**Term Offered:** Spring, Fall

**FREN 3420 Survey Of French And Francophone Civilization II**

[3 credit hours]

An introductory study of selected sociological, political, cultural and economic issues of contemporary France and Francophone areas.

**Prerequisites:** FREN 2150 with a minimum grade of D-

**Term Offered:** Spring

**FREN 3980 Special Topics in French Studies**

[0-6 credit hours]

Study of a selected topic in French language, literature or culture. May be repeated when topic varies.

**Term Offered:** Spring, Fall

**FREN 4010 Advanced Study of French Language I**

[3 credit hours]

A thorough study of syntax, morphology, grammar, and stylistics of French. Emphasizes various writing activities and styles.

**Prerequisites:** FREN 3020 with a minimum grade of D-

**Term Offered:** Fall

**FREN 4020 Advanced Study of French Language II**

[3 credit hours]

Continuing advanced study of syntax, morphology, grammar, and stylistics of French. Emphasizes various writing activities and styles.

**Prerequisites:** FREN 3010 with a minimum grade of D- and FREN 3020 with a minimum grade of D-

**Term Offered:** Spring

**FREN 4050 Advanced Conversation**

[3 credit hours]

Advanced practice in speaking idiomatic French. Special attention to problems of pronunciation and oral proficiency.

**Prerequisites:** FREN 3020 with a minimum grade of D-

**Term Offered:** Spring, Fall

**FREN 4070 French Translation**

[3 credit hours]

Practice in translation of texts from French into English and English into French. Subject matter area will include commerce, natural, physical, and social sciences and the humanities.

**FREN 4160 Teaching Colloquia**

[3 credit hours]

A course in the theory of second language acquisition and practice of teaching foreign / second languages in general.

**Term Offered:** Spring, Summer, Fall

**FREN 4940 Internship in French**

[0-12 credit hours]

Educational work experience, using French, in a pre-approved professional field.

**FREN 4980 Special Topics In French Studies**

[1-3 credit hours]

Study of a selected topic in French or Francophone language, literature, or culture. May be repeated when topic varies.

**Term Offered:** Spring, Summer, Fall

**FREN 4990 Independent Study In French**

[1-3 credit hours]

Independent research in special topics. May be repeated once for additional credit.

## General Engineering (GNEN)

### GNEN 1000 Introduction to Engineering

[3 credit hours]

A course designed to explore the various disciplines of engineering in historical, present, and future context while incorporating basic design principles in an interdisciplinary model.

**Term Offered:** Fall

### GNEN 1010 Professional Development For Pre-Engineering Majors

[1 credit hour]

In this course students will gain a better understanding of the professional and ethical responsibilities of an engineer and the impact of engineering solutions in a global/societal context. In addition, they will explore career opportunities available to engineers. They will develop a better understanding of the importance of effective communication, presentation, and team collaboration skills in securing employment and in being successful in the workplace as well as the importance of professional registration and life-long learning.

**Term Offered:** Spring

### GNEN 1500 Sustainability Living

[3 credit hours]

Sustainable Living explores the sustainability of our lifestyle choices. Core sustainability principles and the importance of assessment to evaluate options are introduced. These guiding foundational concepts are used to evaluate the sustainability of our consumption of water, energy, and goods as well as how to improve the quality of life for the world's population without comprising ethical standards. Students will be challenged to adopt and assess the effect of a lifestyle on their consumption.

### GNEN 1800 Engineering Applications of Mathematics

[3 credit hours]

Solution of engineering applications using mathematical concepts ranging from algebra to differential equations. Examples from the first two years of engineering coursework are solved in class and explored in corresponding laboratory experiments. The objective of this course is to provide an engineering context for subsequent courses in mathematics. Intended for students prior to Calculus.

**Term Offered:** Fall

## Geography and Planning (GEPL)

### GEPL 1010 People, Places, and Society

[3 credit hours]

This course provides an overview of the geographic dimensions of human diversity with an emphasis on understanding the uneven distribution of people and resources in the context of globalization. It is a systematic treatment of the major concepts of human geography and their application to modern problems, population, migration, cultural patterns and processes, political organization of space, agricultural and rural land use, industrialization and economic development, and urban land use. (not for major credit)

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

### GEPL 1100 Environmental Sustainability

[3 credit hours]

While gaining a fundamental understanding of the world's physical environment, students explore the processes and spatial distributions of anthropological changes to the world's lands, freshwater, biota, oceans and atmosphere. Current issues such as global warming, acid rain, ozone depletion, deforestation and desertification are addressed.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

### GEPL 2010 Fundamentals Of Geography

[3 credit hours]

An introduction to basic geographic concepts of both physical and human geography, with emphasis on the interrelationships of people with their physical and cultural environments.

**Term Offered:** Spring

### GEPL 2030 Cultural Geography

[3 credit hours]

A learning-through-writing course. Systematic applications of the concepts of culture and cultural diversity to geographical themes and case studies.

**Term Offered:** Spring

Multicultural Non-US Diversity

### GEPL 2040 World Regional Geography

[3 credit hours]

This course explores the cultural, demographic, socio-economic, historical and political geographies of the world outside of the United States. World regions are examined and discussed with a focus on the forces that create both differences and interconnections among regions. The course uses the themes of globalization and human-environmental interaction, with an emphasis on understanding how these forces operate at different scales to create our global geography.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural Non-US Diversity

### GEPL 2050 World Cities

[3 credit hours]

This course discusses the physical, cultural, socio-economic aspects of the mega cities of the world - the World Cities. It examines the causes and stages of growth and the decline of cities.

**Term Offered:** Spring, Fall

### GEPL 2110 Maps and Map Analysis

[3 credit hours]

This course provides an overview of the appropriate use of maps, a basic tool of analysis in geography and planning. Topics will include map scale and map projections, types of maps and their particular uses, elements of map design, effective communication with maps, special requirements of spatial data, and the fundamentals of spatial analysis using maps. The focus is on the use of maps as tools for spatial analysis and not the production of maps.

**Term Offered:** Fall

**GEPL 3030 Geography Of Europe**

[3 credit hours]

An introduction to the geography of Europe with an emphasis on boundaries, economic development, integration, identity, nationalism, and regional differences. The course includes an examination of how Europe has been defined and what it means to be European in both historical and contemporary contexts. It provides a critical perspective on the geography of Europe as it is impacted by local, regional, and global forces.

**Term Offered:** Spring**GEPL 3050 Geography of US and Canada**

[3 credit hours]

Systematic and regional survey of physical, social and economic geography of the region. Emphasis on the region with respect to worldwide/continental problems and prospects in economic development, management of resources and population adjustment.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**GEPL 3120 Geography Of Asia**

[3 credit hours]

Compares and contrasts physical and human aspects of Asian countries and peoples in relation to economic development.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**GEPL 3220 Geography Of Africa**

[3 credit hours]

Course begins with a general overview of Africa's physical environment, its colonial history and its people and cultures. It then examines a variety of themes associated with development, population, urban and political geography.

**Term Offered:** Fall

Multicultural Non-US Diversity

**GEPL 3300 Geography of Latin America and the Caribbean**

[3 credit hours]

This course explores one of the world's most vibrant regions, Latin America. This world region stretches across diverse landscapes, from tropical rainforests to the snowcapped peaks of the Andes, from megacities to empty deserts and plains. The diversity of environments fosters great cultural diversity, despite sharing similar historical roots. This course explores the geography of Latin America through a combination of thematic and regional approaches.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**GEPL 3440 Population Geography**

[3 credit hours]

A learning through writing course. Space and place facets of population size, growth, migration, distribution and composition with emphasis on the population trends and patterns in both developing and developed nations.

**GEPL 3610 Conservation And Resources**

[3 credit hours]

A timely examination of some basic philosophies, principles and ethical issues in conservation and resource discourses in geography and across the disciplines. Provocative case studies. A learning-through-writing (WAC) course.

**Term Offered:** Spring**GEPL 3650 Economic Geography**

[3 credit hours]

An introduction to economic geography; including industrial location theory, competing production systems, and shifts from manufacturing to service-based economies.

**Term Offered:** Spring, Fall**GEPL 3900 Environmental Planning**

[3 credit hours]

Study of how humans are impacting the health and sustainability of the earth by their actions and activities and means by which we can reduce the impacts by better planning and management of human uses. Topics include water resources, forests, natural hazards, and the Great Lakes, through conservation, protected areas, better use of science, stewardship, cooperation and community actions. Will include use of local examples and case studies drawn from Ohio and the US.

**Term Offered:** Spring, Fall**GEPL 4040 Geography Education Strategies**

[3 credit hours]

Use of geographic inquiry in the emerging integrated social studies and standard geography education curricula for K-12 instruction.

**Term Offered:** Fall**GEPL 4110 Geographic Information Systems**

[3 credit hours]

Introduction to computerized methods for the capture, storage, management, analysis and display of spatially-referenced data for the solution of planning, management and research problems.

**Term Offered:** Spring, Fall**GEPL 4160 Patterns Of World Development**

[3 credit hours]

An examination of contemporary global economic patterns and trends. Compares and contrasts population problems; the diffusion of multinational corporations, and the emergence of post-industrial economies.

**Term Offered:** Fall**GEPL 4180 Geographic Information Systems Applications**

[3 credit hours]

Advanced applications in geographic information systems (GIS) with an emphasis on advanced GIS analysis techniques, Global Positioning System applications in GIS, database design, and a survey of vector- and raster-based GIS software and databases.

**Prerequisites:** GEPL 4110 with a minimum grade of D-**Term Offered:** Spring**GEPL 4210 Land Use Planning**

[3 credit hours]

A broad review of urban and regional planning in the US and Western Europe, introducing land use planning concepts and practices and their role in shaping the direction of urban development.

**Term Offered:** Spring**GEPL 4310 Geography Of Gypsies (Romanies) and Travelers - WAC**

[3 credit hours]

Explorations into identities and distributions of Gypsies (Romanies) and Travelers (GR&T peoples) worldwide and the challenges that their study presents to Geography and to other social science disciplines.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**GEPL 4420 Quantitative Methods in Geographic Research**

[3 credit hours]

An examination of quantitative methods commonly used in geographic research with an emphasis on spatial statistics and cartographic analysis.

**Term Offered:** Fall**GEPL 4490 Remote Sensing Of The Environment**

[3 credit hours]

Introduction to theory, methods and techniques used to gather and analyze remote sensor data. Topics range from low altitude air photo interpretation through satellite image acquisition. Recommended: GEPL 3550.

**Term Offered:** Fall**GEPL 4500 Digital Image Analysis**

[3 credit hours]

Using imagery captured by earth orbiting satellites, students will document changes on the surface of the earth addressing environmental issues. Students will have the opportunity to learn applications of this technology including project based work in the classroom.

**Prerequisites:** GEPL 4490 with a minimum grade of D- or EEES 4490 with a minimum grade of D- or GEPL 5490 with a minimum grade of C or EEES 5490 with a minimum grade of C

**Term Offered:** Spring**GEPL 4530 Principles Of Urban Planning**

[3 credit hours]

An introduction to planning theory, the planner's role in land use regulation economic development, housing and social service delivery is reviewed.

**Term Offered:** Fall**GEPL 4540 Weather And Climate**

[3 credit hours]

A survey analysis of meteorology and climatology. The physical processes of weather and the pattern of climate provide the basis for this course.

**Term Offered:** Summer, Fall**GEPL 4570 Land Development And Planning**

[4 credit hours]

The exploration of theoretical location analysis, pragmatic land development issues and analytic feasibility tools, and the consequences of land use policies that affect development.

**Term Offered:** Spring**GEPL 4580 Location Analysis**

[4 credit hours]

The application of geographic location theory, spatial interaction modeling, optimization techniques and geographic information system processing to the solution of facility location problems.

**Term Offered:** Spring**GEPL 4600 Urban Design**

[3 credit hours]

Concepts and procedures for the organization, design and development of public and private urban forms and spaces at the micro level, including a survey of intraurban elements, cultural, ecological and aesthetic considerations, and interdisciplinary collaboration.

**Term Offered:** Fall**GEPL 4650 Geography of Earth Systems**

[3 credit hours]

Using an Earth System Science approach linking the hydrosphere, biosphere, atmosphere, and lithosphere, students will explore the relationship and spatial characteristics of events such as hurricane landfall, volcanic eruptions and climate change.

**Term Offered:** Spring**GEPL 4700 Community Planning Workshop**

[3 credit hours]

This course introduces the skills and techniques used by practitioners in the planning process. Assignments will focus on the collection, analysis and communication of information by following community planning approaches.

**Term Offered:** Spring**GEPL 4710 Urban Geography**

[3 credit hours]

Geographic perspectives on the social, political and economic functions of cities. Issues of land use, redevelopment, residential and commercial geographies are examined in contemporary North American cities.

**Term Offered:** Spring, Fall**GEPL 4750 Transportation Geography**

[3 credit hours]

This course introduces students to the culture of transportation planning while honing their critical reading and analytical skills. The approach combines two types of analysis. One is a historical political-economy treatment of the evolution of the transportation systems, including the evolution of associated institutions, concluding with contemporary transportation planning issues. The other type of analysis is an introduction to the rational method for determining appropriate public responses for dealing with current transportation planning issues.

**Term Offered:** Spring, Fall**GEPL 4810 Political Geography**

[3 credit hours]

An examination of political actors and power relations at local, regional, national and global scales, and their impact on spaces and places. The course includes topics, such as state formation, electoral geography, identity and social movements, nationalism and regionalism, imperialism and post-colonialism, urban politics, feminist political geography, elites and marginalized individuals, and geopolitics.

**Term Offered:** Spring, Fall**GEPL 4910 Research in Geography**

[1-4 credit hours]

**GEPL 4920 Readings in Geography**

[1-3 credit hours]

**GEPL 4960 Honors Thesis in Geography**

[4 credit hours]

**GEPL 4990 Geography and Planning as Disciplines and Professions**

[1 credit hour]

This course provides an overview and synthesis of geography and planning as academic disciplines and as professions. The course proceeds along two tracks. In the first, students will read and discuss some of the classic literature that attempts to define both fields. In the second, students will learn about career resources for geographers and planners and learn to present themselves as professionals in the fields.

**Prerequisites:** GEPL 2010 with a minimum grade of D-

## German (GERM)

### GERM 1080 German Culture And Commerce

[3 credit hours]

Study of German culture and society with emphasis on business and economics. Taught in English. (Not for major credit.)

**Term Offered:** Spring, Fall

Core Arts & Humanities

### GERM 1090 Introduction To Modern German Culture

[3 credit hours]

An introduction to principal social, artistic and literary aspects of modern German culture. Taught in English. (Not for major credit.)

**Term Offered:** Spring, Fall

Core Arts & Humanities

### GERM 1110 Elementary German I

[4 credit hours]

An introduction to German language and culture through listening, speaking, reading and writing. Laboratory practice required.

**Term Offered:** Spring, Fall

### GERM 1120 Elementary German II

[4 credit hours]

An introduction to German language and culture through listening, speaking, reading and writing. Laboratory practice required.

**Prerequisites:** GERM 1110 with a minimum grade of D- or German Language Placement with a score of 1120

**Term Offered:** Spring, Fall

Core Arts & Humanities

### GERM 2140 Intermediate German I

[3 credit hours]

Practice of the four language skills with grammar review and readings of a literary-cultural nature. Laboratory practice required. (not for major credit)

**Prerequisites:** GERM 1120 with a minimum grade of D- or GERM 1500 with a minimum grade of D- or German Language Placement with a score of 2140

**Term Offered:** Spring, Fall

Core Arts & Humanities

### GERM 2150 Intermediate German II

[3 credit hours]

Further practice of the four language skills with grammar review and readings of a literary-cultural nature. Laboratory practice required. (Not for major credit)

**Prerequisites:** GERM 2140 with a minimum grade of D- or German Language Placement with a score of 2150

**Term Offered:** Spring, Fall

Core Arts & Humanities

### GERM 2980 Special Topics in German Studies

[0-6 credit hours]

Study of a selected topic in German language, literature or culture. May be repeated when topic varies.

### GERM 3010 Conversation And Composition I

[3 credit hours]

Work on advanced listening, speaking, reading and writing skills through intensive work with authentic texts that deal with contemporary issues relating to the German-speaking world.

**Prerequisites:** GERM 2150 with a minimum grade of D- or German Language Placement with a score of 3000

**Term Offered:** Spring, Fall

### GERM 3020 Conversation And Composition II

[3 credit hours]

Work on advanced speaking, listening, reading and writing skills through intensive work with authentic texts that deal with contemporary issues relating to the German-speaking world. A writing-intensive course.

**Prerequisites:** GERM 3010 with a minimum grade of D-

**Term Offered:** Spring, Fall

### GERM 3170 Business German

[3 credit hours]

An introduction to the language and practices of German business and commerce.

**Prerequisites:** GERM 2150 with a minimum grade of D-

### GERM 3200 Survey Of German Literature

[3 credit hours]

A survey of German literature from its origins to the present, with emphasis on literature after 1750.

**Prerequisites:** GERM 2150 with a minimum grade of D-

**Term Offered:** Spring, Fall

### GERM 3410 Survey Of German Civilization I

[3 credit hours]

A study of different aspects of German culture and civilization such as fine arts, history, science and philosophy.

**Prerequisites:** GERM 2150 with a minimum grade of D-

**Term Offered:** Spring, Fall

### GERM 3420 Survey Of German Civilization II

[3 credit hours]

A study of different aspects of German culture and civilization such as fine arts, history, science and philosophy.

**Prerequisites:** GERM 2150 with a minimum grade of D-

**Term Offered:** Spring, Fall

### GERM 3980 Special Topics in German Studies

[0-6 credit hours]

Study of a selected topic in German language, literature, or culture. May be repeated for credit when topic varies.

### GERM 4010 German Syntax And Stylistics I

[3 credit hours]

Refinement of conversation and composition skills through the analysis of texts and written and oral exercises.

**Prerequisites:** GERM 3020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### GERM 4020 Advanced Conversation And Composition II - WAC

[4 credit hours]

A practical application of language skills in the preparation of a German-related project chosen, developed and presented by the student. A writing-intensive and capstone course.

**Prerequisites:** GERM 3020 with a minimum grade of D-

**Term Offered:** Spring, Summer

**GERM 4160 Teaching Colloquia**

[3 credit hours]

A course in the theory of second language acquisition and practice of teaching foreign / second languages in general.

**Term Offered:** Spring, Summer, Fall**GERM 4200 German Culture And Civilization**

[3 credit hours]

Study of major trends and current developments in German Landeskunde. May be repeated when topic varies.

**GERM 4710 German Literature Of The 19th Century**

[3 credit hours]

Study of selected works by authors from Büchner to Fontane.

**Term Offered:** Spring**GERM 4720 German Romanticism**

[3 credit hours]

Study of Romantic writers of Germany such as Novalis, Eichendorff, E.T.A. Hoffmann and Bettina Brentano.

**GERM 4810 German Literature Of The 20th Century**

[3 credit hours]

Study of selected works by authors from the turn of the century to the present.

**Term Offered:** Spring, Fall**GERM 4850 Genre Studies**

[3 credit hours]

Study of a selected literary or film genre, its development, and its influence on German culture. May be repeated for credit when topic varies.

**Term Offered:** Spring, Fall**GERM 4870 German Literature In Translation**

[3 credit hours]

In-depth study of selected works of German literature in English translation. (Not for major credit).

**Term Offered:** Spring, Fall**GERM 4910 Honors Research In German**

[3 credit hours]

Independent research in special topics. May be repeated once for additional credit.

**Term Offered:** Spring, Fall**GERM 4980 Special Topics In German Studies**

[1-3 credit hours]

Study of a selected topic in German language, literature, or culture. May be repeated for credit when topic varies.

**Term Offered:** Spring, Summer, Fall**GERM 4990 Independent Study In German**

[1-3 credit hours]

Independent research in special topics. May be repeated once for additional credit.

**Term Offered:** Spring, Fall

## Global Studies (GLST)

**GLST 2000 Principles Of Global Studies**

[3 credit hours]

A multidisciplinary exploration of the world. Global processes will be examined using many viewpoints, such as culture, politics, economics, geography and philosophy.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**GLST 2980 Topics In Global Studies**

[3 credit hours]

An exploration of a specific global issue. Approaches will be explicitly multidisciplinary and will make use of a variety of perspectives. May be repeated for credit.

**Term Offered:** Spring, Fall**GLST 4900 Senior Seminar In Global Studies**

[3 credit hours]

Theories and research methods in global studies will be examined. A major component of the course will be a research project on some aspect of global studies.

**Prerequisites:** GLST 2000 with a minimum grade of D-**Term Offered:** Spring, Summer**GLST 4960 Honors Thesis In Global Studies**

[3 credit hours]

Supervised research and writing for honors students only. May be taken twice for credit.

**Prerequisites:** GLST 2000 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**GLST 4980 Advanced Topics In Global Studies**

[3 credit hours]

An advanced multidisciplinary exploration of a specific issue in global studies. May be repeated for credit.

**Term Offered:** Fall

## Health and Human Services (HHS)

**HHS 1000 Health And Human Services/College Orientation**

[1 credit hour]

Acquaints the new student with the services, policies, procedures and layout of the university, college and department. Establishes relationships between new students, full-time professors and peer mentors during this time of adjustment. Must be taken first semester of enrollment.

**Term Offered:** Spring, Fall**HHS 1010 Introduction to Health Sciences I with Orientation**

[1 credit hour]

This is the first of a two-part Introduction to Health Science course sequence for students interested in health science professions. The course will help support new students with their transition to college life. Content will include navigating online learning platforms, finding student resources, learning effective study strategies, and learning about potential careers in health science.

**Term Offered:** Fall

**HHS 1020 Introduction to Health Sciences II**

[2 credit hours]

This is the second of a two-part Introduction to Health Science course sequence for students interested in health science professions. This course is designed to do a focused exploration of professions within the concentrations of the health science major, while connecting students to professionals within their field of interest.

**Term Offered:** Spring, Fall**HHS 2500 Data Science I**

[3 credit hours]

Introduction to data science concepts, computer programming to transform raw information in to structured data and analysis of data to answer questions using popular programming and analytic software packages.

**Term Offered:** Spring, Fall**HHS 2980 Special Topics In Health & Human Services**

[1-3 credit hours]

Selected subjects in the field of Health and/or Human Service of special interest to the class and the professor - lower division.

**Term Offered:** Spring, Summer, Fall**HHS 3100 Introduction to Social Determinants of Health**

[3 credit hours]

This is an introductory course on social determinants of health in the United States. Social determinants of health (SDOH) are the systems, factors, and conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality of life outcomes and risks. We will examine the multiple levels of influence through which these factors contribute to health inequalities and explore innovative solutions in which health professionals may address and reduce health disparities when working towards health equity.

**Term Offered:** Spring, Fall**HHS 3600 Foundations of Evidence-Based Practice in Health Science**

[3 credit hours]

Introduction to the principles of evidence-based practice. Course content will include how to locate, appraise, and use contemporary evidence to optimize health outcomes and clinical care.

**Term Offered:** Spring, Fall**HHS 4100 Foundations of Healthcare Delivery**

[3 credit hours]

This course will discuss the evolution of healthcare and teach foundational knowledge and skills to prepare students interested in graduate healthcare programs for patient, client, and healthcare team interactions. Content covered will include an introduction to healthcare delivery systems, frameworks that currently guide healthcare providers, regulatory processes in healthcare, and communication skills to effectively work with patients, clients and other healthcare team members.

**Term Offered:** Spring, Fall**HHS 4500 Data Science II**

[3 credit hours]

Advanced data science concepts, computer programming to build sophisticated analytic databases using multiple source files, engineering and visualization of large data sets. Application of multivariate analysis using popular programming and analytic software packages to report data findings.

**Prerequisites:** HHS 2500 with a minimum grade of D-**Term Offered:** Spring, Fall**HHS 4800 Health Sciences Capstone I**

[3 credit hours]

This course is the first of a two-part capstone project for students graduating with a Bachelor's in Health Sciences. This course is designed to prepare students to assess social determinants of health, and to then plan, promote, implement, and evaluate a program aimed at achieving health equity.

**Prerequisites:** HHS 1020 with a minimum grade of C and HHS 3100 with a minimum grade of C and HHS 3600 with a minimum grade of C**Term Offered:** Fall**HHS 4810 Health Sciences Capstone II**

[3 credit hours]

This culminating Capstone course will provide students with an opportunity to apply the various competencies developed as part of the Health Science Bachelor's degree curriculum. Students will be assigned to a small group and will demonstrate these skills through the development of a program plan focusing on an assigned health inequity need in the community. Students will work with their small group throughout the semester to develop various deliverables critical in the delivery of health promotion programs.

**Prerequisites:** HHS 4800 with a minimum grade of C**Term Offered:** Spring**HHS 4910 HHS Honors Thesis Project**

[1-3 credit hours]

The Thesis/Project is a comprehensive effort of original scholarship. Students work closely with a faculty member for two semesters. Students pose a research question, devise and implement a method, report the results, and discuss the findings. An honors project requires a student to develop a question or identify a matter that is addressed by a thorough literature review, an analysis and integration of the literature, and a comprehensive treatment of the problem or matter.

**Term Offered:** Spring, Summer, Fall**HHS 4980 Special Topics In Health & Human Services**

[1-3 credit hours]

Selected subjects in the field of Health and/or Human Service of special interest to the class and the professor - upper division.

**Term Offered:** Spring, Summer, Fall

## Health Care (HCAR)

**HCAR 3000 Introduction to Health Care Administration**

[3 credit hours]

Studies the structure of the U.S. health care delivery system, provider organizations, and the health care professionals who staff these organizations. Opportunities and challenges of health care administration are discussed.

**Term Offered:** Spring, Summer, Fall

**HCAR 4360 Quality Improvement In Health Care**

[3 credit hours]

Purpose and philosophy of quality assessment and system design. Selection/application of tools for data collection, analysis and problem resolution. Incorporates requirements of Joint Commission on the Accreditation of Healthcare Organizations.

**Term Offered:** Spring, Summer, Fall**HCAR 4530 Problem Solving In Health Care Environment**

[4 credit hours]

The theory, practice, and management of healthcare administration in effective decision making within the dynamics of current health care organizations.

**Prerequisites:** HCAR 3000 with a minimum grade of D- and HCAR 4360 with a minimum grade of D- and HCAR 4550 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**HCAR 4540 Internship In Health Management**

[3 credit hours]

Internship in institutional health care focusing on mid-management.

**Term Offered:** Spring, Summer, Fall**HCAR 4545 Project Management in Healthcare**

[3 credit hours]

This course provides an applied approach to creating an Electronic Medical Record system project implementation plan utilizing several approaches to achieve this goal.

**Prerequisites:** HCAR 4530 with a minimum grade of D- and HCAR 4570 with a minimum grade of D- and HCAR 4580 with a minimum grade of D-**HCAR 4550 Health Care Finance**

[3 credit hours]

Study of financial problems and current sources of reimbursement to health care organizations. Emphasis on departmental financial management as integrated with financial management of organizations.

**Prerequisites:** BUAD 2050 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**HCAR 4560 Services in Healthcare**

[3 credit hours]

This class will describe the services provided by hospitals, the healthcare provider teams and how departments are organized in the provision of care. This course will have specific concentration on hospital services, structure and operations.

**HCAR 4570 Resources in Healthcare**

[4 credit hours]

This four (4) hour hybrid course focuses on the study of resources in healthcare and how these resources impact the daily operations in a health care environment.

**Prerequisites:** HCAR 3000 with a minimum grade of D- and HCAR 4560 with a minimum grade of D-**HCAR 4580 Leadership and Management in Healthcare**

[3 credit hours]

This three (3) hour class will focus on learning strategies and tools for leading and managing the unique challenges of healthcare organizations. The course will investigate the foundations of leadership, core competencies of health care leadership and techniques to hardwired goals and strategies in leadership and development of a strong organizational culture.

**Prerequisites:** HCAR 3000 with a minimum grade of D- and HCAR 4550 with a minimum grade of D- and HCAR 4560 with a minimum grade of D-

## Health Education (HEAL)

**HEAL 1310 Nutrition for Fitness & Health**

[1 credit hour]

The student will learn basic nutrition as it applies physical fitness and overall health. Students will learn principles of planning a healthful diet that meets fitness goals.

**Term Offered:** Spring, Fall**HEAL 1320 Nutrition for Weight Management**

[1 credit hour]

The student will learn principles of weight management, nutrition as it applies to healthy weight control, and overall health and will learn to plan individual approach to healthy diet.

**Term Offered:** Spring, Fall**HEAL 1360 Alcohol and Contemporary Issues in College Life**

[1 credit hour]

This course provides students with an overview of the health, legal, and academic risks associated with excessive alcohol consumption among college students. Various prevention and treatment issues will be examined.

**Term Offered:** Spring, Fall**HEAL 1500 First Aid**

[2 credit hours]

Provides the knowledge, skills, and confidence necessary to provide care for victims of sudden illness and injury. CPR, AED, and First Aid certification upon successful completion of the course.

**Term Offered:** Spring, Fall**HEAL 1700 Introduction to Health Careers**

[3 credit hours]

An introduction to health and human service careers through an examination of the health care system, health career educational requirements, job outlook, and professional settings in which they operate.

**Term Offered:** Spring, Fall**HEAL 1800 Medical Terminology**

[3 credit hours]

Study of the origin and structure of medical words, their prefixes, suffixes, special endings and singular to plural forms. Medical terms relating to the body and to clinical procedures will be explored.

**Term Offered:** Spring, Summer, Fall



**HEAL 2000 Foundations Of Health Education**

[3 credit hours]

Designed to introduce students to the field of health education by acquainting them with basic information, history, philosophy and competencies unique to health educators.

**Term Offered:** Fall**HEAL 2100 Living Well**

[3 credit hours]

There is a strong correlation between personal well-being, potential for success in personal/career goals, and a successful college experience. An understanding of this interconnectedness based on social and behavioral health theories and science helps students develop personalized strategies for individual success in all areas of life. This practical application course builds a core knowledge foundation in the well-being literature and helps them apply that knowledge to positive changes in their lives. These strategies and skills are based on an understanding of the qualitative and quantitative evidence from scientific studies in this area. This course is well-suited to all majors wanting a better understanding of the social and behavioral foundations of living well.

**Term Offered:** Spring, Fall**HEAL 2400 General Safety**

[3 credit hours]

An analysis of accident causation and disasters occurring in the home, workplace and community, and the presentation of a framework for developing accident counter-measures.

**Term Offered:** Spring, Fall**HEAL 2500 Personal Health**

[3 credit hours]

Information is presented on the prevention and control of health problems including heart disease, cancer, infectious diseases, mental health, nutrition, human sexuality and other pertinent personal health issues.

**Term Offered:** Spring, Summer, Fall**HEAL 2600 Mental Health**

[3 credit hours]

An examination of the principles of mental health, mental illnesses, mental health professionals and mental health facilities.

**Term Offered:** Spring, Summer, Fall**HEAL 2700 Introduction to Public Health**

[3 credit hours]

Introduces students to the structure, organization and methods of public health including an emphasis on protecting and improving the health of populations via research, needs assessment, program planning, program implementation, and program evaluation.

**Term Offered:** Spring, Fall**HEAL 2750 Introduction to Epidemiology**

[3 credit hours]

This course provides students with a basic understanding of epidemiologic methods and study design and of the place of epidemiology in preventive and clinical medicine, disease investigation, program evaluation and public policy.

**Term Offered:** Fall**HEAL 2800 Principles Of Nutrition**

[3 credit hours]

Students learn basic nutrition concepts. Personal nutritional practices are analyzed and evaluated to plan improvements. Encourages making informed decisions about nutrition by critically analyzing nutrition information which abounds in popular media.

**Term Offered:** Spring, Summer, Fall**HEAL 2940 Practicum In Community Health**

[2 credit hours]

Supervised field experience with community health agency. Students work under direct supervision of the agency's staff and a University supervisor.

**Term Offered:** Spring, Summer, Fall**HEAL 3000 Global Health**

[3 credit hours]

This is an introductory course focused on applying public health principles in developing as well as developed countries designed to fulfill a global studies distribution requirement.

**Term Offered:** Spring, Fall**HEAL 3300 Drug Awareness**

[3 credit hours]

Focuses on the impact of drug abuse and misuse on the individual and society. Explores physiological, psychological and rehabilitative aspects of drug misuse and abuse. Prevention strategies are discussed.

**Term Offered:** Spring, Summer, Fall**HEAL 3500 Environmental Health**

[3 credit hours]

An overview of the environmental effects of factors such as population growth, pollution, energy use, agriculture practices and waste disposal on the environment. Consideration will be given to solutions.

**Term Offered:** Spring, Summer**HEAL 3600 Prevention And Control Of Disease**

[3 credit hours]

An examination of the etiology, pathogenesis, prevention and control of acute and chronic diseases. Current techniques of prevention, control and detection are examined.

**Term Offered:** Spring, Summer, Fall**HEAL 3700 Foundations Of Human Sexuality**

[3 credit hours]

The course is designed to provide an introduction to the scientific study of human sexuality. The topic is approached from a variety of perspectives, including the historical, psychological, sociological, biological, ethical and legal.

**Term Offered:** Spring, Summer, Fall**HEAL 3800 Death And Dying**

[3 credit hours]

The course is designed to analyze the relationship between death and health with emphasis upon the biological, psychological, bioethical and legal aspects of death in contemporary society.

**Term Offered:** Spring, Summer, Fall

**HEAL 4100 Health Behavior**

[3 credit hours]

Examines the major theories and models of health behavior and explores how those theories/models can be used to promote health and wellness in individuals, groups and populations.

**Prerequisites:** (HEAL 2000 with a minimum grade of B- and HEAL 2700 with a minimum grade of B-)

**Term Offered:** Fall

**HEAL 4200 Methods And Materials In Community Health**

[3 credit hours]

Designed for senior-level students to advance their knowledge and skills in needs assessment, program design, program implementation, program management, and program evaluation.

**Prerequisites:** HEAL 2000 with a minimum grade of D- and HEAL 2700 with a minimum grade of D- and HEAL 2750 with a minimum grade of D-

**Term Offered:** Fall

**HEAL 4250 Program Evaluation**

[3 credit hours]

Provides students with the fundamental knowledge of the types (formative, outcome, summative) of program evaluation and the purposes and importance behind program evaluation. Additionally, students will learn how to develop theory based evaluation methods.

**Prerequisites:** HEAL 4200 with a minimum grade of C

**Term Offered:** Spring

**HEAL 4400 Health Problems Of Youth**

[3 credit hours]

Provides education majors the knowledge and skills necessary to help identify, understand, and prevent preadolescent and adolescent health problems and risky health behaviors which directly impact school and future success.

**Term Offered:** Spring, Fall

**HEAL 4500 Women's Health Care**

[3 credit hours]

The course is designed to consider personal health topics of special interest and applicability to women. The focus is upon the role of self-understanding and self-help in promotion of health and well-being.

**Term Offered:** Spring, Summer, Fall

**HEAL 4560 Health Problems Of Aging**

[3 credit hours]

Acquaints students with physical changes and socio-psychological problems that occur with aging. Focus is on personal adjustment important in maintaining health throughout the aging process.

**Term Offered:** Spring, Summer, Fall

**HEAL 4700 Nutritional Science**

[3 credit hours]

Introduces basic human nutritional needs. Examines the role of diet and health and disease throughout the lifestyle, including weight control and fitness issues. Personal nutritional practices are analyzed and evaluated.

**Prerequisites:** KINE 2530 with a minimum grade of D- or KINE 2560 with a minimum grade of D- or KINE 2570 with a minimum grade of D- or EXSC 2530 with a minimum grade of D- or EXSC 2560 with a minimum grade of D- or EXSC 2570 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**HEAL 4750 Obesity And Eating Disorders**

[3 credit hours]

Examines the issues of obesity and eating disorders. Consideration of effects on the individual as well as the public health implications. Explores causes, health and emotional impact, and treatment approaches.

**Prerequisites:** HEAL 2800 with a minimum grade of D-

**Term Offered:** Summer, Fall

**HEAL 4800 Public Health Research And Statistics**

[3 credit hours]

An examination of research and statistical techniques commonly employed in the health field. Topics will include research design, ethics of research, hypothesis testing and critiques of published research in health journals.

**Prerequisites:** HEAL 2750 (may be taken concurrently) with a minimum grade of B- and HEAL 3600 with a minimum grade of B-

**Term Offered:** Spring

**HEAL 4900 Health Education Seminar**

[1-3 credit hours]

Seminars are developed around selected topics of interest and allow in-depth consideration of the subject. They provide the student with advanced study in the area.

**Term Offered:** Spring, Summer, Fall

**HEAL 4940 Senior Field Experience**

[6 credit hours]

Provides students the opportunity to develop the competencies necessary to assume responsibilities as an entry-level public health specialist through on-site work experiences in a public health agency, organization, or industry. Students will work under direct supervision of the agency's staff and a University supervisor.

**Prerequisites:** HEAL 2940 with a minimum grade of D- and HEAL 4100 with a minimum grade of D- and HEAL 4800 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**HEAL 4960 Political Determinants of Health**

[3 credit hours]

An examination of the political determinants of health, that is, the upstream political forces and policy decisions that are the causal sources of the social conditions that lead to health inequities. This course introduces the importance of power, politics, advocacy, and policy in public health. Students will learn models of health equity and the political determinants of health and apply these to contemporary case studies with particular attention to the health effects of racism.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**HEAL 4990 Independent Study In Health Education**

[1-3 credit hours]

Directed individual study. Specialty title, seminar sheet and permission of instructor are required.

**Term Offered:** Spring, Summer, Fall

# Health Information Management (HIM)

## HIM 2210 Medical and Pharmacological Terminology

[3 credit hours]

Provide the student with a solid working knowledge of the medical language and basic pharmacology, especially the vocabulary and terminology used in medical coding, classification systems, and ancillary care.

**Term Offered:** Spring, Fall

## HIM 2230 Healthcare Document Requirement

[3 credit hours]

Inpatient and ambulatory health care data requirements will be identified and analyzed, including collection, analysis, and implementation.

This course also includes aspects related to medical staff, personnel requirements, licensing, certifying, and accrediting agencies.

**Term Offered:** Spring, Fall

## HIM 2260 Legal Issues in HIM

[2 credit hours]

This course covers overview of the US legal system, identification of laws and regulations applicable to healthcare topics and related the health information management. Hardcopy and electronic health record legal issues examined in detail.

**Term Offered:** Spring, Fall

## HIM 2300 Healthcare Resources, Payers

[3 credit hours]

Introduction to roles of professionals in meeting standards of regulatory agencies and voluntary organizations in healthcare delivery systems. Data collection, quality, access, retention, technology and impact on healthcare financing.

**Term Offered:** Spring, Summer, Fall

## HIM 2310 Acute Care Clinical Classification Systems And Services

[4 credit hours]

Principles of coding disease conditions and procedures using the International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) and 10th Revision Procedure Classification System (ICD-10-PCS) are covered. Manual and computerized methods will be utilized to assign codes following Official Coding Guidelines required for reporting data.

**Prerequisites:** (KINE 1460 with a minimum grade of C or EXSC 1460 with a minimum grade of C and KINE 1560 with a minimum grade of C or EXSC 1560 with a minimum grade of C and KINE 2580 with a minimum grade of C or EXSC 2580 (may be taken concurrently) with a minimum grade of C) and (HIM 2210 with a minimum grade of C and HIM 2230 with a minimum grade of C)

**Term Offered:** Fall

## HIM 2320 Ambulatory Clinical Classifications Systems And Services

[4 credit hours]

Principles of coding with the Healthcare Common Procedure Coding System (HCPCS) are discussed, and the assignments of codes using both manual and computerized methods are practiced.

**Prerequisites:** HIM 2210 with a minimum grade of C and (KINE 1460 with a minimum grade of C or EXSC 1460 with a minimum grade of C and KINE 1560 with a minimum grade of C or EXSC 1560 with a minimum grade of C)

**Term Offered:** Spring

## HIM 2350 Reimbursement Methodologies

[2 credit hours]

MS-DRGs, APCs, RBRVS, and other reimbursement methods used by federal, state, and private insurance carriers are identified and reviewed. Compliance issues, including coding, billing, and chargemaster accuracy are identified and reviewed. Case mix and its implications for providing and improving healthcare quality also discussed.

**Prerequisites:** HIM 2310 with a minimum grade of C and HIM 2320 with a minimum grade of C

## HIM 3240 Health Information Administration Practices

[4 credit hours]

Management theory and principles related to health information management in the acute and non-acute care environments are examined. Business techniques beneficial to health information administrators are identified and analyzed. Management theory and principles related to administration of healthcare service organizations are examined. Focus on strategic planning, accreditation/licensure, marketing, and institutional issues.

**Prerequisites:** BUAD 1020 with a minimum grade of D- and HIM 2300 with a minimum grade of C

**Term Offered:** Spring, Fall

## HIM 3940 Healthcare Content and Record Management

[4 credit hours]

Generalized health information administrative duties in regards to staffing, managing, record release, storage and retrieval, coding, abstracting, utilization management, quality improvement, computer applications in health information practice.

**Prerequisites:** HIM 3240 with a minimum grade of C

**Term Offered:** Spring, Fall

## HIM 4210 Healthcare Statistics, Registries, Research

[4 credit hours]

Theory of healthcare statistics will be reviewed and students will apply practical application of statistical methods used in healthcare to produce reports. Surveillance mechanisms, including database management used in registries to track various disease processes or injuries will be investigated and researched.

**Prerequisites:** MATH 2600 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**HIM 4230 Compliance and Ethical Issues**

[3 credit hours]

This course presents an overview of the compliance and ethical issues facing the health care industry. The importance of corporate compliance programs and standards, policies, and procedures healthcare organizations should have in place to assure compliance with government funded programs will be the focus of the course. Senior standing status required.

**Term Offered:** Spring, Fall**HIM 4300 Performance Improvement and Quality Outcomes in Healthcare**

[3 credit hours]

This course encompasses the philosophy and purposes of quality improvement methods in health care organizations through application of tools for data collection, data analysis, and problem resolution. Continuous monitoring and performance improvement (PI) methods are investigated and applied to the management and evaluation of PI programs, the review of PI outcomes and implementation of action plans.

**Prerequisites:** INFS 3250 with a minimum grade of D- and CMPT 2460 with a minimum grade of D- and CMPT 1420 with a minimum grade of D-

**Term Offered:** Fall**HIM 4500 Health Informatics & Information Management**

[4 credit hours]

This course introduces students to informatics as it applies to healthcare. Healthcare information systems are identified and the importance of the technology and its effect on healthcare delivery, communication, confidentiality, financing, and education are examined. An introduction to key medical areas in which computers are used will be discussed.

**HIM 4910 Integrative Capstone Experience**

[4 credit hours]

The course consists of a demonstration of proficiencies and competencies in Health Information Administration (HIA) core courses and an extensive examination of the cognitive levels required to pass the national Registered Health Information Administration (RHIA) exam and to become an effective healthcare information supervisor. Senior standing and instructor permission required.

**Term Offered:** Spring, Fall**HIM 4940 Professional Practice Experience**

[4 credit hours]

Specialized administrative assignment within health information management in a facility, agency or organization. Students submit a major project for the site and members of the related HIM community of practice. Senior standing and instructor permission required.

**Prerequisites:** HIM 3240 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

## History (HIST)

**HIST 1010 Europe To 1600**

[3 credit hours]

A survey of western Europe, including its ancient Jewish, Greco-Roman and Christian roots; the Middle Ages, Renaissance and Reformation.

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**HIST 1020 Europe From 1600**

[3 credit hours]

A survey of European history from the 17th century to the present with emphasis on the major political, economic, social and cultural trends.

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**HIST 1050 World History To 1500**

[3 credit hours]

A survey of world history from the first humans to 1500. Focuses on how agriculture changed human life, the early development of world religions, and contact across cultures. Learn about empires such as China, Persia, Rome, Mali, and the Aztec.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

**HIST 1060 World History From 1500**

[3 credit hours]

A survey of world history from 1500 to the present. Cultural and political topics are treated so as to draw comparisons between the most significant modern societies.

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**HIST 1070 The Contemporary World**

[3 credit hours]

This thematic survey of the 20th century from a historical and global perspective emphasizes the origins of the world in which we live and discusses some of our alternative futures.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

**HIST 1090 East Asia From 1800**

[3 credit hours]

Multidisciplinary introduction to the history, civilization, political organization, international relations, social and economic patterns, and cultural trends of China and Japan since 1800.

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

**HIST 1100 Latin American Civilizations**

[3 credit hours]

A thematic survey from pre-Columbian times to the present. Covers Native American cultures, European colonial policies and institutions, independence movements, the emergence of new nations and twentieth-century problems.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

**HIST 1110 African Civilization**

[3 credit hours]

General cultural and historical survey of Africa south of the Sahara from earliest times to the 20th century. Includes topics on art, literature, philosophy, religion and society.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

**HIST 1120 Middle East Civilization**

[3 credit hours]

General cultural and historical survey of the Middle East and Islam from 600 to the 20th century. Includes topics in historical movements, literature, religion, and social and intellectual history.

**Term Offered:** Spring, Fall

Core Arts & Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

**HIST 1130 Introduction To Historical Thinking**

[3-4 credit hours]

(Not for major credit) An introduction to the nature, concepts and skills of the discipline of history designed to improve historical awareness and the ability to think historically. Occasionally offered as a writing intensive course.

**Term Offered:** Spring, Fall

Core Arts & Humanities

**HIST 2000 Methods Seminar - WAC**

[3 credit hours]

Research techniques, writing of research papers, and resumes. Introduction to historiography. Offered as a writing intensive course.

**Term Offered:** Spring, Fall**HIST 2010 America To 1865**

[3 credit hours]

The development of the United States from its Native American and immigrant roots through the Civil War.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

**HIST 2020 America From 1865**

[3 credit hours]

Survey of American history since the Civil War, with special attention to political, social, economic and cultural developments.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

**HIST 2030 Great Americans**

[3 credit hours]

The careers of selected Americans in politics, business, science, religion and literature.

**Term Offered:** Spring, Fall**HIST 2050 Ancient Greece**

[3 credit hours]

Survey of the Greek and Hellenistic world.

**Term Offered:** Spring, Fall

Core Arts & Humanities, OT36 Arts and Humanities

**HIST 2060 Ancient Rome**

[3 credit hours]

Survey of the Roman Republic and Empire.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

**HIST 2170 Great Britain To 1714**

[3 credit hours]

An introductory course on English history from the Roman conquest to 1714. Emphasis on the Norman conquest, social and political life in medieval England, the monarchy, and common law.

**Term Offered:** Summer, Fall**HIST 2250 World War I**

[3 credit hours]

World War I from origins to conclusion and its effect on the course of the 20th century. Political and diplomatic background, conduct, termination, technology, and the war's effect on society and the 20th century.

**Term Offered:** Fall**HIST 2260 World War II On Film**

[3 credit hours]

Analysis of contemporary and retrospective documentary film treatments of major aspects of World War II, with emphasis on their historical accuracy and authenticity.

**HIST 2290 Toledo: Metropolitan Era, 1880-1980**

[3 credit hours]

The growth of Toledo in the 20th century, including suburbanization, the city's leadership in the national Progressive Movement, Depression and New Deal, organized labor, individual suburbs, and recent problems.

**HIST 2340 American Indian History**

[3 credit hours]

An introduction to Indian-White relations from pre-Columbian times to present. Emphasizes tribes of the United States, Mexico and Canada.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**HIST 2640 Medieval Russia**

[3 credit hours]

Russia from the 9th century to 1700, including Kievan and Moscovite Russia.

**Term Offered:** Fall

Multicultural Non-US Diversity

**HIST 2650 Modern Russia**

[3 credit hours]

Russia from 1700 to the present, including Imperial and Soviet Russia.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**HIST 2700 Japan And World War II**

[3 credit hours]

A study of the factors behind Japan's entry into World War II with the United States and the Allied Powers and an in-depth treatment of Japan at war.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**HIST 2710 Postwar Japan**

[3 credit hours]

This course examines the development of Japan since the war. It focuses on the political, economic, social and cultural changes since 1945 and relates these factors to Japan's international relations.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**HIST 2730 The Chinese Revolution**

[3 credit hours]

This course examines the process by which Mao Zedong and the Chinese Communist Party came to power. It treats the political, economic and social forces behind the Chinese revolution (1900-49).

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**HIST 2980 Special Topics**

[1-4 credit hours]

Topics selected by various instructors. May be repeated when the topic varies.

**Term Offered:** Spring, Fall**HIST 3100 European Middle Ages I**

[3 credit hours]

The history of Western Europe from its beginnings to the eve of the First Crusade.

**Term Offered:** Spring, Fall**HIST 3110 European Middle Ages II**

[3 credit hours]

Europe from the First Crusade to the late fifteenth century.

**Term Offered:** Spring, Fall**HIST 3120 Women in Medieval Europe**

[3 credit hours]

Women's lives in medieval Europe from a range of perspectives, including noblewomen, townswomen, peasant women, religious women. Students will gain an appreciation of how medieval women's lives were different from and similar to those of modern women, as well as a broader understanding of the European middle ages.

**HIST 3160 The American West**

[3 credit hours]

Settlement since the Civil War; mining rushes and Indian wars; violence and outlaws; farming and cattle ranching. Twentieth-century politics; ethnicity; and economics. Growth of California and the Sunbelt states.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**HIST 3200 Colonial Latin America**

[3 credit hours]

Latin American history to 1825. Covers pre-Columbian Indian civilizations including Aztecs and Incas; Spanish and Portuguese conquests and Africans in the Americas; colonial policies and institutions; colonial society and independence movements.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**HIST 3210 Modern Latin America**

[3 credit hours]

Major economic, political and social developments from independence to the present. Covers the export boom, neocolonialism, nationalism, and revolutions in Latin America. Considers how, In spite of the region's tremendous diversity, there is a shared "Latin American" experience.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**HIST 3250 African-American History To 1865**

[3 credit hours]

An examination of the historical experiences of African-Americans in the United States from 1619 to 1865.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**HIST 3260 African-American History From 1865**

[3 credit hours]

An examination of the historical experiences of African-Americans in the United States since 1865.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**HIST 3270 The City In American History, 1607-1850**

[3 credit hours]

Examination of early American urban development and culture. Topics include the development of urban infrastructure, crime and disorder; moral reform; religious revival; immigration; prostitution; the development of commercial entertainment.

**Term Offered:** Spring, Fall**HIST 3280 City And Metropolis In Modern America, 1850 To The Present**

[3 credit hours]

The growth of the 19th-century city and the emergence of the 20th-century American metropolis. Urban problems of the 20th century.

**Term Offered:** Spring, Fall**HIST 3290 Ohio History**

[3 credit hours]

From colonial times to the present.

**Term Offered:** Spring, Summer, Fall**HIST 3310 Ethnic America**

[3 credit hours]

American ethnic diversity from the colonial era to recent decades. A study of individuals and groups. Topics include American identity and Americanization, migration, legislation, nativism.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**HIST 3360 American Intellectual History I**

[3 credit hours]

Development and influence of major ideas from the colonial period to 1865. Topics include Puritanism, the Enlightenment, Democracy and Transcendentalism.

**Term Offered:** Spring**HIST 3380 Business And American Society**

[3 credit hours]

The growth of American business from the eighteenth century to the present. Examines enterprise and its relationship to culture, politics, technological developments and economic change.

**Term Offered:** Spring, Fall**HIST 3420 American Military History**

[3 credit hours]

The development of the strategy, tactics, organization, operation and policies of the armed forces of the U.S.; the interaction with technological factors, foreign policy goals, international problems and American society.

**Term Offered:** Fall**HIST 3470 U.S. Disability History**

[3 credit hours]

Provides a historical overview of the lived experiences of people defined as disabled and changing historical definitions of disability in the region that became the United States

**Term Offered:** Spring, Fall

**HIST 3480 American Labor And Working Class History**

[3 credit hours]

Development of working class communities, cultures, organizations and ideology from colonial era to the present. Topics include industrialization, unionization, labor law, gender and race constructions.

**Term Offered:** Spring

Multicultural US Diversity

**HIST 3530 20th Century Germany**

[3 credit hours]

Germany's development from the end of World War I to the present with emphasis on the rise of Nazism, World War II, and the division and new unification of Germany.

**Term Offered:** Fall**HIST 3540 History Of The Middle East From 600 To 1500**

[3 credit hours]

A survey of Middle East history from the emergence of Islam and the formation of Islamic states until the establishment of the Ottoman and Persian empires in the 15th-16th centuries.

Multicultural Non-US Diversity

**HIST 3550 History Of The Middle East Since 1500**

[3 credit hours]

History of the Middle East from the collapse of the Medieval Muslim States and the rise of the Ottoman Empire in the 16th century through the period of European intervention to the development of independent Middle Eastern states in the 20th century.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**HIST 3600 Women In American History**

[3 credit hours]

This course presents American history from early settlement to the present by examining the contributions of women, in interaction with men, to the immensely complex fabric of American life.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**HIST 3630 Africa To 1800**

[3 credit hours]

Africa from antiquity to 1800. Topics include the peopling of the continent, growth of centralized political institutions, stateless societies, Islamic penetration, African slave trade.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**HIST 3640 Africa Since 1800**

[3 credit hours]

Africa from 1800 to the present. Subjects include 19th century, colonial and independent Africa. Specific topics: the rise of South Africa, imperialism, African resistance and nationalism and independent African political, cultural and economic systems.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**HIST 3870 Junior Honors Research I**

[3 credit hours]

Independent research on specific historical topics.

**Term Offered:** Spring, Summer, Fall**HIST 3880 Junior Honors Research II**

[3 credit hours]

Independent research on specific historical topics.

**Term Offered:** Spring, Fall**HIST 3980 Special Topics**

[1-4 credit hours]

Topics selected by various instructors. May be repeated when the topic varies.

**Term Offered:** Spring, Summer, Fall**HIST 4050 Muslims, Christians, and Jews in Medieval Spain**

[3 credit hours]

This course will provide an overview of the political and cultural history of medieval Spain while allowing students time and space to grapple with primary sources and historical arguments. The class will investigate the concept of convivencia or "living together," tracing its development in the works of historians, and evaluating whether it is a concept that can adequately be applied to medieval Spain.

**Term Offered:** Spring, Fall**HIST 4110 Sports, Race, and Power in Apartheid South Africa**

[3 credit hours]

The class aims to interrogate the ways in which politics of sports, race and power, as well as resistance, intersected during the Apartheid era in South Africa, and what the legacies thereof are.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**HIST 4200 Colonial Foundations Of U.s.**

[3 credit hours]

Colonial America from early settlement to the eve of the American Revolution. Examination of the American Colonies from an Atlantic perspective, focusing on European motivation for settlement, European-Native American relations, the origins and development of slavery, religious and economic change, and the creation of early American culture.

**Term Offered:** Fall**HIST 4210 Women In Early America**

[3 credit hours]

Examination of the evolution of women's experience in the United States from colonization to the Civil War era.

**Term Offered:** Fall

Multicultural US Diversity

**HIST 4220 The American Revolution**

[3 credit hours]

Examination of the decades surrounding the American Revolution and America's transformation from British colony to independent republic. Political and social origins of the Revolution; formation of the republican state; changing notions of citizenship and equality; the role of political leaders in society; social and cultural consequences of the Revolution.

**Term Offered:** Fall**HIST 4250 Civil War And Reconstruction**

[3 credit hours]

Slavery and the Constitution in the sectional controversy, the political and military events of the Civil War, and the impact of the war on American society, 1848-1876.

**Term Offered:** Spring, Fall

**HIST 4270 20th Century America, 1920-1945**

[3 credit hours]

Social, political and economic development of the United States, 1920-1945. The Republican ascendancy, the car culture, Great Depression, New Deal and World War II.

**Term Offered:** Fall**HIST 4280 U.s. Since 1945: Affluence And Anxiety**

[3 credit hours]

Social, economic and political development of the United States since 1945. The Cold War, McCarthyism, Eisenhower Equilibrium, the New Frontier and the Great Society, civil rights, Watergate and the Reagan Revolution.

**Term Offered:** Spring, Fall**HIST 4290 US Women from 1865**

[3 credit hours]

A survey of women in the United States from 1865. Covers women's political, economic, and social participation in American life. Particular attention is given to the life experiences of women from a diversity of racial, ethnic, sexual, and socio-economic backgrounds.

**Term Offered:** Spring, Fall**HIST 4300 LGBTQ History in America**

[3 credit hours]

This course explores the history of lesbian, gay, bisexual, transgender, and queer (LGBTQ) people in the United States from the pre-colonial period to the present day. It focuses on the processes of individual and group interactions, construction of cultural identities, and societal perceptions and their consequences. Topics of discussion include the historically contingent nature of sexual and gender identities, the medicalization of non-normative behaviors, the LGBTQ rights movement, and the AIDS crisis.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**HIST 4340 Far Western Frontier**

[3 credit hours]

Native Americans; Spanish conquistadors and missionaries; American scientific and military exploration; mountain men and fur trade; international rivalries and Mexican War; gold rush of '49.

**HIST 4430 Slavery In America**

[3 credit hours]

Stresses the African continuum among slaves within the context of variations in goals and policies of slaveowners, slave trade, slave economics, demographics, slave labor and formation of slave culture.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**HIST 4450 The United States And Latin America**

[3 credit hours]

Examines the 19th and 20th centuries: emphasizing events and movements defining political, economic, migratory, military, and cultural relations and the emergence of Latinos as largest minority group in the US.

Multicultural US Diversity

**HIST 4470 People And Politics In Mexico**

[3 credit hours]

Mexican history from pre-Hispanic times to the present. Emphasis on the political, social and economic changes imposed by the Spaniards; the legacy of colonialism on the modern nation; the Mexican Revolution and the "Mexican Miracle."

**Term Offered:** Summer, Fall

Multicultural Non-US Diversity

**HIST 4490 Witchcraft And Magic In Medieval And Early Modern Europe**

[3 credit hours]

Witchcraft, religion and magic in western Europe from the 12th through 17th centuries, focusing on the origins of witchcraft belief, diabolical magic, the witchcraze and its decline.

**Term Offered:** Spring, Fall**HIST 4720 Modern Chinese History**

[3 credit hours]

China in transition under the impact of the West; forces leading to the revolution of 1911, the Nationalists' struggle, the emergence of the People's Republic of China and aspects of post-revolutionary China.

**Term Offered:** Spring

Multicultural Non-US Diversity

**HIST 4740 Modern Japanese History**

[3 credit hours]

Japan in transition under Western influence, forces leading to the Meiji Restoration, the modernization of Japan, Japan's rise as a world power, war and postwar developments.

**Term Offered:** Spring

Multicultural Non-US Diversity

**HIST 4790 The Holocaust**

[3 credit hours]

This advanced course deals with selected aspects of the history and memory of Nazi genocide against the Jews of Europe, with special emphasis on visual and survivor sources.

**Term Offered:** Spring**HIST 4840 Public History Practicum**

[3 credit hours]

Course provides students with hands-on experience in the practice of public history by completing a project using specialized techniques, client-oriented research and teamwork. May be repeated for credit.

**Term Offered:** Spring**HIST 4870 Senior Honors Research I**

[3 credit hours]

Open to College Honors students, to History Honors students and to Honors students from other departments. Independent research in specific topics.

**Term Offered:** Spring, Summer, Fall**HIST 4880 Senior Honors Research II**

[3 credit hours]

Open to College Honors students, to History Honors students and to Honors students from other departments. Independent research in specific topics.

**Term Offered:** Spring, Fall



**HIST 4940 Public History Internship**

[0-8 credit hours]

Supervised experiential learning in history.

**Prerequisites:** (HIST 2000 with a minimum grade of D- and HIST 4830 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall**HIST 4980 Special Topics**

[1-4 credit hours]

Topics selected by various instructors.

**Term Offered:** Spring, Fall**HIST 4990 Independent Studies**

[1-4 credit hours]

Research and writing on topics designed to meet individual needs.

**Term Offered:** Spring, Summer, Fall

## Honors (HON)

**HON 1010 Ideas and Society**

[3 credit hours]

Through a process of critical examination, analytical thought, and intellectual exchange, students engage in study of ideas in society during different time periods and across different cultural contexts and intellectual disciplines. Drawing upon primary and secondary sources using multiple humanities discourses, students analyze and evaluate and respond to diverse populations and perspectives. From this synthesis, students gain ability to apply understanding of ideas in contemporary society as well as ideas in their fields of study.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**HON 1020 Innovation and Society**

[3 credit hours]

In this interdisciplinary course, students will analyze and critique various processes of innovation in society with an emphasis on its impact on human society. Students will gain the ability to evaluate course concepts against competing approaches and solutions in society, as well as in their own fields of study.

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**HON 2010 Multicultural Toledo**

[3 credit hours]

Multicultural Toledo is an interdisciplinary investigation into the multicultural, historical and socio-economic development of the greater Toledo area and the ways that different community groups respond to, and shape, this transformation. Topics may include: ethnicity, race, gender, gender orientation, socioeconomic class, religion, national origin, dis/ability, and age within the Toledo community. The course features multiple site visits to community organizations.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity

**HON 2020 Multicultural Literatures: The North American Experience-Honors-WAC**

[3 credit hours]

This reading, writing and discussion course examines selected literatures of the North American experience: for example, texts by African American, Arab American, Asian American, Hispanic or Native American authors.

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities, Multicultural US Diversity, OT36 Arts and Humanities

**HON 2030 Multicultural Literatures: The Non-European World-Honors-WAC**

[3 credit hours]

This reading, writing and discussion course examines selected non-European literatures.

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

**HON 2990 Independent Study**

[1-5 credit hours]

Supervised independent study.

**Term Offered:** Spring, Summer, Fall**HON 3010 Community Engagement**

[3 credit hours]

This research intensive, interdisciplinary course is designed to provide students with experience in effective community engagement through work on a local issue or problem in a mentored, multidisciplinary team. Class will focus on developing practical skills, identifying best practices, and exploring potential solutions for complex problems. The course culminates in a grant proposal that can be adopted or adapted by our community partners. Class time consists of short instructional presentations, group work, and class discussions.

**Prerequisites:** HON 2010 with a minimum grade of D- or HON 2020 with a minimum grade of D- or HON 2030 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**HON 4950 Honors Seminar**

[3 credit hours]

These interdisciplinary seminars are organized around a variety of subjects and intellectual concerns.

**Term Offered:** Fall**HON 4960 Honors Seminar**

[3 credit hours]

These interdisciplinary seminars are organized around a variety of subjects and intellectual concerns.

**Term Offered:** Spring**HON 4990 Independent Study**

[1-5 credit hours]

Supervised independent study.

**Term Offered:** Spring, Summer, Fall

## Human Resource Management (HURM)

### HURM 3220 Human Resource Management

[3 credit hours]

Introduction to the field of human resource management. It is designed for students planning careers in human resources or those who simply wish to supplement their skills in personnel matters commonly of concern to all managers.

**Term Offered:** Spring, Summer, Fall

### HURM 4640 Benefits, Health & Wellness

[3 credit hours]

Includes planning and administering mandatory and voluntary benefit programs, cost containment strategies and benefit communication programs. Development and administration of Employee Assistance Programs and employee wellness programs are also covered.

**Prerequisites:** HURM 3220 with a minimum grade of D-

**Term Offered:** Spring, Fall

### HURM 4650 Compensation

[3 credit hours]

Design and administration of compensation systems, including job evaluation, skill-based pay, salary surveys, pay level decisions, pay structures, executive and special employee group compensation programs, and budget and administrative issues.

**Prerequisites:** HURM 3220 with a minimum grade of D-

**Term Offered:** Spring, Fall

### HURM 4660 Planning, Selection, and Recruitment

[3 credit hours]

Covers aspects of human resource planning, including Affirmative Action and succession planning, developing legally defensible selection and recruitment methods, and career development.

**Prerequisites:** HURM 3220 with a minimum grade of D-

**Term Offered:** Spring, Fall

### HURM 4710 Human Capital Performance and Development

[3 credit hours]

This course has been designed to give students the critical skills necessary to improve the performance of individuals and work groups in competitive, dynamic organizations. Specifically, the focus will be on HRM best practices in performance management and training and development that, when brought together, help to create competitive advantage with people.

**Prerequisites:** HURM 3220 with a minimum grade of C-

**Term Offered:** Spring, Fall

## Information Systems (INFS)

### INFS 3150 Principles Of Structured Computer Programming And Problem Solving

[3 credit hours]

Introduction to fundamental constructs of computer programming. This course introduces data types, variables, constants, arrays, objects, properties, methods, arguments, events, subroutines, functions, data handling, and program control structures. Additionally the course helps students develop skills and logical reasoning used in solving business problems.

**Prerequisites:** BUAD 1020 with a minimum grade of D- or CMPT 1100 with a minimum grade of D- or Business Computer Prof-Score with a score of 39

**Term Offered:** Spring, Summer, Fall

### INFS 3250 Business Data Analysis & Reporting

[3 credit hours]

This course is designed to acquaint students with the application and use of integrated software. The course will provide students with hands-on experience in data analysis and manipulation, macro recording and editing and other advanced features and functions of popular business software packages. Students will gain skills in computer based report writing and data visualization techniques.

**Prerequisites:** BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### INFS 3370 Business Data Communications

[3 credit hours]

An introduction to data communications in business. Topics include local-area and wide-area networks, including the Internet; hardware and media; network topologies; client-server networks; and network operating system software.

**Prerequisites:** BUAD 1020 with a minimum grade of D- or CMPT 1100 with a minimum grade of D- or Business Computer Prof-Score with a score of 39

**Term Offered:** Spring, Fall

### INFS 3380 Web Application Development I

[3 credit hours]

An introduction to business application program development on the web using contemporary technologies with emphasis on client-side applications. Implications of information technology projects on organizations will be discussed.

**Prerequisites:** BUAD 1020 with a minimum grade of D- or CMPT 1100 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

### INFS 3400 Principles of Information Systems Security

[3 credit hours]

This course aims to give students a broad understanding of technical and business issues in information systems security, systems security models, analysis of process and technology in systems security and security policies leading to information assurance.

**INFS 3770 Introduction To Database Systems**

[3 credit hours]

In this course, the design and implementation of database management systems are studied. Students will develop significant skills in data modeling, database design and SQL. Students will work in teams developing a database application.

**Prerequisites:** INFS 3150 with a minimum grade of D- and (BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

**INFS 3780 Enterprise Wide Information Systems Management**

[3 credit hours]

Introduction to ERP, Roles of SCM and CRM in Business Environment, Major Business Processes relating to functional areas of Business in an integrated software environment. Extensive hands-on exercises using an ERP software.

**Prerequisites:** BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-

**Term Offered:** Fall

**INFS 3980 Contemporary Topics**

[3 credit hours]

Selected current topics in Information Systems practice, trends and technology.

**Prerequisites:** BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-

**Term Offered:** Spring, Fall

**INFS 4100 Business Intelligence Using Big Data**

[3 credit hours]

This course aims to give students a broad understanding of technical and business issues in data analytics. Students will gain proficiency with reporting, data visualization and prediction using SAP Business Warehouse.

**Prerequisites:** BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-

**INFS 4300 Web Application Development II**

[3 credit hours]

Address web architecture, web server administration and security issues; analyze, design, develop, and implement extensive database oriented business processes using server-side and client-side processing.

**Prerequisites:** (INFS 3770 with a minimum grade of D- and INFS 3380 with a minimum grade of D-)

**Term Offered:** Spring

**INFS 4510 Business Systems Analysis and Design**

[3 credit hours]

Analysis, design and implementation of business information systems will be studied using Case tools and other appropriate software systems. Will also emphasize management of organizational change brought about by information technology projects.

**Prerequisites:** (BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-) and INFS 3150 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**INFS 4620 Enterprise Database Systems**

[3 credit hours]

In-depth exposure to database concepts including relational and Object Data Models, normalization, logical design, stored functions, procedures, triggers, forms and reports will be explored using a business database package.

**Prerequisites:** INFS 3770 with a minimum grade of D- and (BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-)

**Term Offered:** Spring

**INFS 4680 Enterprise Systems Implementation and Integration**

[3 credit hours]

This course will provide students an overview of the fundamental business processes and examination of how business processes interact with SAP ERP including the system configuration and implementation. Issues. Students will gain a deep appreciation for the role of enterprise systems in managing processes from multiple functional perspectives. Also, students will work on various hands-on exercises including configuration of a fictitious company and implementation of business rules using an enterprise system.

**Prerequisites:** BUAD 2020 with a minimum grade of D- or BUAD 3050 with a minimum grade of D-

**INFS 4940 Info Systems Internship**

[3 credit hours]

A prearranged work-study program where students specializing in computer systems, operations management or decision sciences obtain on-the-job experience while learning and applying the basic concepts and techniques of their respective areas.

**Term Offered:** Spring, Summer, Fall

**INFS 4990 Independent Study: Readings And Research**

[1-3 credit hours]

Individual student study of a topic of interest to both the faculty member and student. Students are responsible for finding a faculty member to sponsor readings and research.

**Term Offered:** Spring, Summer, Fall

## Information Technology (ITEC)

**ITEC 2100 Small Computer Systems**

[3 credit hours]

Introduces the various alternatives for single-user microcomputer operating system software and hardware. Topics include a definition of single-user systems, systems software, installation and setup, native and third-party utilities, peripheral devices, file systems, and memory management.

**Prerequisites:** CSET 1100 with a minimum grade of D-

**Term Offered:** Fall

## Interdisciplinary (INDI)

**INDI 1000 Biomedical Research**

[3 credit hours]

Biomedical Research under the guidance of a faculty member.

**Term Offered:** Spring, Summer, Fall

**INDI 4000 Directed Research in Human Health Sciences**

[1-12 credit hours]

The Directed Research in Human Health Sciences course is designed to help undergraduate students gain real insight into specific human health science research programs by involving them in Mentor's research program and working on an ongoing project. Students learn and execute the experimental techniques required to examine the question, analyze data and draw conclusions. May be repeated for credit.

## Interdisciplinary Studies (IDS)

**IDS 1000 Arts Living And Learning Forum**

[1 credit hour]

This course will provide a framework for and supplement to the activities and objectives of the UT Arts Living and Learning Community. It is required for participation in the Arts Living-Learning Community.

**Term Offered:** Spring, Fall**IDS 2010 Interdisciplinary Studies**

[1-4 credit hours]

Multilevel designations which permit the offering of interdisciplinary courses. Participation from at least two departments is required. Prerequisites to be determined by the constituencies contributing to each course.

**Term Offered:** Spring, Summer, Fall

## International Business (IBUS)

**IBUS 3150 Understanding Cultural Differences For Business**

[3 credit hours]

Course focuses on understanding cultures and managing cultural differences for competitive advantage in global business.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**IBUS 3600 International Management**

[3 credit hours]

An overview of management in different geographic regions of the world. Case studies will be used to compare and contrast national models of management.

**Prerequisites:** BUAD 3030 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**IBUS 4100 Study Abroad Program**

[3 credit hours]

Program includes travel abroad, study and written report of an industry, company, or issues of interest, cultural immersion, and visits to manufacturing, service and government organizations.

**Term Offered:** Spring, Summer, Fall**IBUS 4360 Global Business**

[3 credit hours]

Students will learn to integrate international business functions, develop strategies that respond to environmental changes, and understand the challenges faced by small, mid-sized and multinational firms operating in a global environment.

**Term Offered:** Spring, Fall**IBUS 4940 Internship In International Business II**

[3 credit hours]

A course in which the student receives practical International Business experience working in a global organization either within the U.S. or overseas.

**Term Offered:** Spring, Summer, Fall

## Japanese (JAPN)

**JAPN 1080 Japanese Culture And Commerce**

[3 credit hours]

Study of Japanese culture and society with emphasis on business and economics. Taught in English. (not for major credit).

**Term Offered:** Summer

Core Arts &amp; Humanities, Multicultural Non-US Diversity

**JAPN 1090 Introduction To Japanese Culture**

[3 credit hours]

An introduction to principal social, artistic and literary aspects of modern Japanese culture. Taught in English. (Not for major credit.)

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity

**JAPN 1110 Elementary Japanese I**

[4 credit hours]

An introduction to Japanese language and culture through aural comprehension, speaking, reading and writing. Laboratory practice required. (not for major credit)

**Term Offered:** Spring, Fall**JAPN 1120 Elementary Japanese II**

[4 credit hours]

An introduction to Japanese language and culture through listening, speaking, reading and writing. Laboratory practice required. (not for major credit)

**Prerequisites:** JAPN 1110 with a minimum grade of D- or Japanese Language Placement with a score of 1120**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**JAPN 2140 Intermediate Japanese I**

[3 credit hours]

Further practice of the four language skills with grammar review and readings of a literary-cultural nature. Laboratory practice required. (not for major credit)

**Prerequisites:** JAPN 1120 with a minimum grade of D- or Japanese Language Placement with a score of 2140**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**JAPN 2150 Intermediate Japanese II**

[3 credit hours]

Further practice of the four language skills with grammar review and readings of a literary-cultural nature. Laboratory practice required. (not for major credit)

**Prerequisites:** JAPN 2140 with a minimum grade of D- or Japanese Language Placement with a score of 2150**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**JAPN 2190 Study Abroad**

[1-3 credit hours]

The course permits beginning students of Japanese to spend time in a country where Japanese is spoken. Credit awarded in accordance with established departmental procedures.

**Prerequisites:** JAPN 2150 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**JAPN 3010 Conversation And Composition I**

[3 credit hours]

Work on advanced aural comprehension, speaking, reading and writing skills through intensive work with authentic texts dealing with contemporary issues relating to Japan. Laboratory practice required.

**Prerequisites:** JAPN 2150 with a minimum grade of D- or Japanese Language Placement with a score of 3000**Term Offered:** Fall**JAPN 3020 Conversation And Composition II**

[3 credit hours]

Further work on advanced aural comprehension, speaking, reading and writing skills through intensive work with authentic texts dealing with contemporary issues relating to Japan. Laboratory practice required. A writing-intensive course.

**Prerequisites:** JAPN 3010 with a minimum grade of D-**Term Offered:** Spring**JAPN 3170 Business Japanese**

[3 credit hours]

An introduction to the language and practices of Japanese business and commerce.

**Term Offered:** Spring, Fall**JAPN 3410 Survey Of Japanese Civilization I**

[3 credit hours]

A study of different aspects of Japanese culture and civilization such as fine arts, history, science and philosophy.

**Prerequisites:** JAPN 2150 with a minimum grade of D-**Term Offered:** Fall**JAPN 3980 Special Topics in Japanese Studies**

[0-6 credit hours]

Study of a selected topic in Japanese language, literature, or culture. May be repeated for credit when topic varies.

**JAPN 4010 Japanese Syntax And Stylistics I**

[3 credit hours]

A review of Japanese stylistic structures through the analysis of texts and written and oral exercises in Japanese.

**Prerequisites:** JAPN 3020 with a minimum grade of D-**Term Offered:** Fall**JAPN 4020 Japanese Syntax And Stylistics II**

[4 credit hours]

Further review of Japanese stylistic structures through the analysis of texts and written and oral exercises in Japanese. The course includes an introduction to Japanese calligraphy. A writing-intensive course.

**Prerequisites:** JAPN 4010 with a minimum grade of D-**Term Offered:** Spring**JAPN 4050 Advanced Conversation I**

[3 credit hours]

Practice in speaking idiomatic Japanese.

**Term Offered:** Fall**JAPN 4060 Advanced Conversation II**

[3 credit hours]

Continued practice in speaking idiomatic Japanese.

**Term Offered:** Spring**JAPN 4190 Study Abroad**

[1-12 credit hours]

The course permits the student minoring in Japanese to spend time in a country where Japanese is spoken. Credit awarded in accordance with established departmental procedures.

**Prerequisites:** JAPN 3020 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**JAPN 4940 Internship in Japanese**

[0-12 credit hours]

Educational work experience, using Japanese, in a pre-approved professional field.

**JAPN 4980 Special Topics In Japanese Studies**

[1-3 credit hours]

Study of a selected topic in Japanese language, literature, or culture. May be repeated for credit when topic varies.

**Term Offered:** Spring, Summer, Fall**JAPN 4990 Independent Study In Japanese**

[1-3 credit hours]

Independent research on special topics. May be repeated once for additional credit.

**Term Offered:** Spring, Summer, Fall

## Latin (LAT)

**LAT 1110 Elementary Latin I**

[4 credit hours]

Study of the fundamentals of Latin vocabulary, grammar and syntax. Translation of elementary readings. (not for major credit)

**Term Offered:** Fall**LAT 1120 Elementary Latin II**

[4 credit hours]

Continued study of fundamental Latin vocabulary, grammar and syntax. Translation of elementary readings. (not for major credit)

**Prerequisites:** LAT 1110 with a minimum grade of D- or Latin Language Placement with a score of 1120**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**LAT 2140 Intermediate Latin I**

[3 credit hours]

Brief review of vocabulary, grammar and syntax. Readings in Latin prose by such authors as Sallust, Livy and Cicero. (not for major credit)

**Prerequisites:** LAT 1120 with a minimum grade of D- or Latin Language Placement with a score of 2140**Term Offered:** Fall

Core Arts &amp; Humanities

**LAT 2150 Intermediate Latin II**

[3 credit hours]

Intermediate level Latin poetry of the Republic and Augustan periods.  
(not for major credit)

**Prerequisites:** LAT 2140 with a minimum grade of D- or Latin Language Placement with a score of 2150

**Term Offered:** Spring, Fall

Core Arts & Humanities

## Latin American Studies (LALX)

**LALX 2000 Introduction to Latin American and Latinx Studies**

[3 credit hours]

Examines the history and cultural experience of Latin Americans and people of Latin American descent living in the United States.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

## Law and Social Thought (LST)

**LST 2010 Law And Social Thought**

[3 credit hours]

This course examines the function and force of law in society in an interdisciplinary context. Students are given the opportunity to think about law in relationship to society, morality, politics, language, history and power. Readings may include perspectives from philosophy, literature, psychology, sociology, history, anthropology and opinions of the court.

**Term Offered:** Spring, Fall

**LST 2030 Cultural Geography**

[3 credit hours]

A learning-through-writing course. Systematic applications of the concept of cultural to geographic themes: culture areas, cultural landscapes, culture history, cultural ecology and cultural diversity.

**Term Offered:** Spring

Multicultural Non-US Diversity

**LST 2500 Proseminar I**

[1 credit hour]

For sophomore and junior majors in LST: discussion among faculty and students of the interdisciplinary study of law and LST program development. Topics vary, may be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Fall

**LST 2640 Race, Class, And Gender**

[3 credit hours]

Introduction to the study of race, class and gender as factors in American satisfaction.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity, OT36 Social Science

**LST 2700 Principles of Political Theory - WAC**

[3 credit hours]

This course investigates core concepts in the history of political theory such as justice, liberty, and equality. We discuss how and why the influence of certain authors and ideas persists. Contemporary issues are interpreted using these authors and ideas in order to strengthen critical thinking skills and broaden students' thinking about politics.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Fall

**LST 2980 Special Topics**

[3 credit hours]

Special topics in Law and Social Thought. Topics vary by instructor, may be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**LST 3050 Economics Of Gender**

[3 credit hours]

Analysis of labor market outcomes and income distribution characteristics resulting from gender differences; gender-related economic outcomes: the "feminization of poverty," persistent male-female wage differential, expanding proportions of female-headed and same sex households.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**LST 3060 U.S. Disability History**

[3 credit hours]

This course provides a historical overview of the lived experiences of people defined as disabled and changing historical definitions of disability in the region that became the United States of America. We will consider how major historical forces such as capitalism, industrialization, colonialism, and democratic ideals have impacted and been shaped by people with disabilities.

**Prerequisites:** LST 2010 with a minimum grade of D-

**LST 3080 Economics Of Crime**

[3 credit hours]

Study of crime as an economic activity; costs of crime to the community; economic approach to crime reduction.

**Term Offered:** Spring, Fall

**LST 3180 Media Communication Law**

[3 credit hours]

Case studies and readings in libel, privacy, access and other legal issues arising from constitutional, judicial and administrative laws that affect mass communication.

**Term Offered:** Spring, Fall

**LST 3500 Proseminar II**

[1 credit hour]

For Junior and Senior majors in LST: discussion among faculty and students of the interdisciplinary study of law and LST program development. Topics vary, may be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-

**Term Offered:** Spring, Fall

**LST 3510 Constitutional Law I**

[3 credit hours]

Examines the political and institutional role of the U.S. Supreme Court in the development of the American legal system, the separation of powers between the executive, legislative, and judicial branches of the federal government, and the relationship between the federal government and the states. The course focuses on the analysis of Supreme Court cases as well as political science and legal scholarship.

**Term Offered:** Spring, Fall**LST 3520 Constitutional Law II**

[3 credit hours]

The development of the American legal system and the implications of judicial decisions affecting the institutions and powers of government, the federal system and the relationship of the individual to government.

**Prerequisites:** PSC 1200 with a minimum grade of D-**Term Offered:** Spring, Fall**LST 3550 Principles Of Law**

[3 credit hours]

An overview of the politics of law. We examine such questions as the sources and existence of law, the legal process in civil and criminal cases, the nature of rights and the search for justice through participation in the legal system. Addresses specific issues such as plea bargaining and jury trials, personal injury lawsuits, national security and police powers, and the nomination and confirmation of federal judges.

**Term Offered:** Spring, Summer, Fall**LST 3710 Psychology And The Law**

[3 credit hours]

Emphasizes the utilization of theoretical and empirical notions of psychological science as they apply to both civil and criminal law.

**LST 3750 Social And Political Philosophy**

[3 credit hours]

A study of classic and contemporary treatments of justice, authority, the relations between individual and community, the meaning of freedom and equality, power and violence, and race and gender.

**Term Offered:** Fall**LST 3760 Crime And Punishment**

[3 credit hours]

A philosophical study of topics such as crime, responsibility, justice and punishment. Special attention is paid to current practices in the criminal justice system.

**Term Offered:** Spring, Fall**LST 3770 Art and Disease - WAC**

[3 credit hours]

This WAC course considers how objects of material culture (film, photography, painting, sculpture, etc.) have intersected with disease while studying disease-related texts and histories of contagion (e.g., AIDS). Web-assisted course.

**Prerequisites:** LST 2010 with a minimum grade of D-**LST 3800 Sexual Politics**

[3 credit hours]

This course examines sexual politics through studying canonical literature of Western political theory, feminism and postmodern theory.

**Term Offered:** Spring, Fall**LST 3810 Political Geography**

[3 credit hours]

An examination of geopolitical and geostrategic issues at the nation-state and international level.

**Term Offered:** Spring, Fall**LST 3820 Contemporary Political Ideas**

[3 credit hours]

Surveys trends in 20th century political and social thought, including critical theory, post-structuralist theory, feminism and anti-racist politics. Particular issues addressed include bureaucracy, mass society, state and civil violence, and identity politics.

**Term Offered:** Spring**LST 3980 Special Topics**

[3 credit hours]

Special topics relating to issues in Law and Social Thought. Topics vary by instructor, may be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**LST 4000 Global Issues in Disability Studies**

[3 credit hours]

Special focus will be on global and contemporary issues as they arise in changing political and social environments. Geopolitical area of focus may vary based instructor expertise.

**Term Offered:** Fall**LST 4010 Islamic Law and Society**

[3 credit hours]

This course will survey Islamic law in historical and comparative modern contexts. This course will provide (a) basic introduction to the sources and methods of classical Islamic legal interpretation, (b) survey of the most pressing areas in which traditional Islamic norms remain relevant today—criminal law, family law, and commercial law, (c) the challenges and transformations introduced by colonialism, modernity, and the nation-state, and (d) comparison with the American law and the constitution, highlighting comparative interpretive methods such as originalism versus progressivism, and innovative dimensions of Islamic law such as legal pluralism, wide room for local custom, religious diversity, and restorative justice.

**Term Offered:** Spring**LST 4550 Issues In Contemporary Law**

[3 credit hours]

Examination of contemporary approaches to the analyses of law and the judicial system with special focus on current issues facing the courts.

**Term Offered:** Spring, Fall**LST 4590 Law, Policy And The Politics of Sexuality**

[3 credit hours]

This course explores the public policies that affect the lesbian, gay, bisexual and transgender communities in the United States and in other countries. It examines the factors that affect policymaking in this area.

**Term Offered:** Spring, Fall**LST 4640 Disability Law and Human Rights**

[3 credit hours]

Explores the intersections between disability rights and human rights by examining the development, the ideological framework, and the legal contexts of disability law in the U.S. and global contexts. Recommended: DST 2020, 3020, 3030, or 3060.

**Term Offered:** Spring, Fall

**LST 4710 Criminology**

[3 credit hours]

Crime and criminal behavior: nature, types and extent of crime, societal reactions; problems in research and theory, prevention, control and treatment.

**Term Offered:** Summer**LST 4840 Ecotourism: Studies of the Africana World**

[3 credit hours]

Introduce students to the field of ecotourism studies and specific challenges of community development and sustainability. The course covers ecotourism in the Africana world of Africa, the Caribbean, and Latin America.

**Prerequisites:** LST 2010 with a minimum grade of D-**LST 4900 Seminar In Law And Social Thought**

[3 credit hours]

Advanced seminar for the interdisciplinary study of law in society. Topics vary by instructor, may be repeated for credit. Required of LST majors.

**Prerequisites:** LST 2010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**LST 4940 Field Experience**

[1-6 credit hours]

Community work, internship, or field study relating to law and society. May be repeated for credit.

**Prerequisites:** LST 2010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**LST 4980 Special Topics**

[3 credit hours]

Advanced seminar in Law and Social Thought. Topics vary by instructor, may be repeated for credit. Required of LST majors.

**Prerequisites:** LST 2010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**LST 4990 Capstone in Law and Social Thought**

[3 credit hours]

The Capstone course in Law and Social Thought is an interdisciplinary, collaboratively taught seminar thematically organized around a topic in the study of law.

**Prerequisites:** LST 2010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

## Legal Specialties (LGL)

**LGL 1010 Introduction To Law**

[3 credit hours]

The course is designed to improve oral and written communication skills through the study of contracts, real property, torts and criminal law. The course includes the structure and operation of the state and federal court systems, as well as the status and uses of paralegals.

**Term Offered:** Spring, Fall**LGL 1150 Tort Law**

[3 credit hours]

This course covers the traditional areas of tort law, including negligence, trespass, mental distress and conversion as well as the defenses to these claims. The course is taught through the case study method.

**Term Offered:** Spring**LGL 1160 Legal Research, Writing And Case Analysis**

[3 credit hours]

Designed to provide the student with an understanding of the function of the law library and to develop research techniques and legal analysis and writing skills through use of traditional law library materials and computerized legal research techniques such as Lexis and Anderson CD-ROM Law on Disk.

**Prerequisites:** LGL 1010 with a minimum grade of D-**Term Offered:** Spring**LGL 1500 Legal Aspects of Poverty**

[3 credit hours]

A significant part of the United States population lives in poverty. Students will learn to think critically about how poverty intersects with issues of diversity, political discourse, macro-ethics, and societal concepts of economic justice. Students will ultimately gain effective communication skills to participate meaningfully in social discourse about poverty. Students will explore a range of legal and policy issues affecting the ability of low-income people to access the most basic necessities of life. We will examine (1) the substantive law governing access to necessities; (2) human rights theories of poverty; (3) the effects of market forces on poverty; and (4) how poverty affects work, education, criminalization, and access to justice. This course aims to give students a solid grounding in both the content and impact of the laws and policies governing poverty in America.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**LGL 1720 Law Practice Management**

[3 credit hours]

This course exposes students to various management structures within and the administration of the law office and other legal environments. Critical thinking will be applied to management theories and applications.

**Term Offered:** Fall**LGL 2020 Civil Procedure**

[3 credit hours]

An in-depth study of the Rules of Civil Procedure, including application of rules of fact patterns. Students will draft litigation documents including complaint, answer and discovery pleadings.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1150 with a minimum grade of D-)**Term Offered:** Fall**LGL 2110 Estate & Probate Administration**

[3 credit hours]

Study of the common forms of wills and trusts and a survey of the fundamental principles of law applicable to each; study of the organization and jurisdiction of the probate court, analysis of the administration of estates in probate court and a review of estate and inheritance taxes.

**Term Offered:** Spring**LGL 2120 Real Estate Transactions**

[3 credit hours]

The law of real property and common types of real estate transactions and conveyances, such as deeds, land installment contracts, sales contracts and leases, with emphasis on researching, drafting and recording of documents related thereto.

**Term Offered:** Fall



**LGL 2130 Family Law**

[3 credit hours]

Study of the law and practice of divorce, dissolution and all matters relating to the termination of a marriage. Students will be trained to conduct client interviews, draft pleadings and associated court forms, and calculate support under state-mandated guidelines.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1160 with a minimum grade of D-)

**Term Offered:** Fall

**LGL 2210 Practices And Procedures In Administrative Law**

[3 credit hours]

This course takes a look at the substantive and procedural aspects of various administrative law agencies with emphasis on providing skills to practice in administrative law.

**Term Offered:** Spring

**LGL 2700 Advocacy: Mock Trial**

[3 credit hours]

An in-depth survey of the trial process which exposes students to each step of a trial in a hands-on fashion. The course will be taught utilizing traditional lecture, reading and actual mock trial experience.

**Term Offered:** Fall

**LGL 2940 Legal Assisting Internship**

[3 credit hours]

Field experience in law offices. Students will be placed in various legal assisting positions by the program director. Students will meet for job-related seminar once a week and will work at their assigned law office for 180 hours during the semester.

**Term Offered:** Spring, Summer, Fall

**LGL 3010 Law Of Business Associations**

[3 credit hours]

Study of business entities: sole proprietorships, partnerships and corporations. Critical analysis of business entities, de facto and de jure entities. Students will complete articles of incorporation, bylaws and minute books.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1720 with a minimum grade of D-)

**Term Offered:** Spring

**LGL 3030 Advanced Legal Research & Writing**

[3 credit hours]

Focus on advanced legal writing. Students will be challenged to master computer assisted legal research methods.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1160 with a minimum grade of D-)

**Term Offered:** Fall

**LGL 3050 Bankruptcy Practices & Consumer Applications**

[3 credit hours]

An analysis of consumer laws including landlord-tenant relationships, consumer sales practices, uniform commercial code transactions, credit card law, garnishment, fair debt collection practices act and the United States Bankruptcy Code.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1160 with a minimum grade of D-)

**Term Offered:** Fall

**LGL 3110 Personal Law**

[3 credit hours]

Through critical reasoning/collaborative learning, students will examine personal law issues and legal rights/responsibilities, enabling them to formulate analytical models readily transferable to legal issues in their present and future lives.

**Term Offered:** Spring, Summer

**LGL 3120 Personal Law II**

[3 credit hours]

An analysis of current legal decisions on topics such as same sex marriage, home forced entry and theology studies subsidies through analogizing/distinguishing related fact patterns and criticizing judicial exposition/logic.

**Prerequisites:** LGL 3110 with a minimum grade of D-

**LGL 3330 Litigation**

[3 credit hours]

Focus on evidence and investigation, applying critical thinking skills to actual litigation cases. Analysis of court pleadings for appropriateness and alternative mechanisms. Study of post trial and appellate matters.

**Prerequisites:** (LGL 1150 with a minimum grade of D- and LGL 2020 with a minimum grade of D-)

**Term Offered:** Spring

**LGL 4030 Contract Law**

[3 credit hours]

Focus on the laws concerning creation and termination of contracts. Students will analyze contractual terms including reliance, capacity, unconscionability, conditions, assignments, third-party beneficiaries and the effect of changed circumstances.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1160 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

**LGL 4130 Clinic Experience**

[3 credit hours]

Students will work in a clinical environment, such as: Court Appointed Special Advocates, the UT Center for Mediation and Legal Rights, the Toledo Bar Association's Pro Se Family Law Program.

**Prerequisites:** (LGL 1010 with a minimum grade of D- and LGL 1160 with a minimum grade of D-)

**Term Offered:** Spring

**LGL 4230 Health Care And The Law**

[3 credit hours]

An analysis of health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations.

**Term Offered:** Spring, Summer, Fall

**LGL 4330 Mediation: Topics And Techniques**

[3 credit hours]

This service learning course teaches the facilitative approach to mediating disputes. Students break down disputed issues, role play, and observe actual mediations for the peaceful and cooperative resolution of disputes.

**Term Offered:** Spring, Fall

**LGL 4940 Advanced Paralegal Internship**

[3 credit hours]

Field experience for seniors, placement within their specialty. Students meet for 1 hour seminar and work at assigned law office for 12 hours per week.

**Term Offered:** Spring, Summer, Fall**LGL 4990 Criminal Forensics and Trial Practice**

[3 credit hours]

This course allows students to step out of the traditional classroom setting and practice hands-on skills. Students will be assigned as crime scene investigators, paralegals and attorneys and will be responsible for investigating a homicide, indicting a suspect and conducting a trial. Part I of the class involves investigative techniques for the homicide investigative process. Part II of the class exposes students to each step of the trial in a hands-on fashion.

**Prerequisites:** LGL 2700 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

## Linguistics (LING)

**LING 3150 Linguistic Principles**

[3 credit hours]

An introduction to modern linguistic theories about the nature and structure of language. Data from English as well as other languages will be used.

**Term Offered:** Spring, Fall**LING 4190 Sociolinguistics**

[3 credit hours]

Combines linguistic and societal concerns through empirical research.

**Term Offered:** Spring, Fall**LING 4210 Issues In Esl Writing**

[3 credit hours]

Study of key concepts in ESL writing instruction and research, characteristics of second language writers and their texts, curricular options, and responding to and assessing ESL writing.

**Term Offered:** Spring, Fall**LING 4980 Special Topics**

[3 credit hours]

An undergraduate course on a special topic. Consult Time Schedules for topic to be studied, prerequisite(s) and semester offered.

**Term Offered:** Spring, Fall

## Management (MGMT)

**MGMT 3630 Conflict Management: Mediation & Negotiations**

[3 credit hours]

Course is designed to develop negotiation and conflict management skills. Students will learn to apply these skills in distributive and integrative negotiation situations using cases, role-plays and exercises.

**Term Offered:** Spring, Summer, Fall**MGMT 3700 Best Practices in Diversity Leadership**

[3 credit hours]

Organizations must be able to draw on their most important resource – the skills of the workforce. With the increasing richness of diversity in the world and in the workforce, organizational leaders need to expand their outlook and use creative strategies to effectively leverage diversity in the workplace.

Multicultural US Diversity

**MGMT 3770 Ethics In Leadership And Management**

[3 credit hours]

The ethical dilemmas faced by organizational leaders are explored and a four-lens model of ethical decision-making is presented. Students will practice using the model to resolve common ethical dilemmas for new and experienced managers.

**Term Offered:** Spring, Summer, Fall**MGMT 3910 Research In Management**

[3 credit hours]

In-depth independent research work under the supervision of a faculty member.

**Term Offered:** Spring, Summer, Fall**MGMT 4250 Performance Management For Individuals And Teams**

[3 credit hours]

Course examines the process and implementation of performance management systems at both individual and group levels. Performance appraisal, coaching, development planning, and performance problems will be discussed.

**Prerequisites:** HURM 3220 with a minimum grade of D-**Term Offered:** Spring**MGMT 4330 Leading Organizational Change and Development**

[3 credit hours]

This course introduces students to the practice of analyzing, planning, implementing and evaluating organizational change and development. Students will learn to apply the relevant individual, team and organizational change interventions which contribute to greater performance and effectiveness.

**Term Offered:** Spring**MGMT 4780 Leading and Managing People**

[3 credit hours]

The basic principles, practices and dynamics of effective leadership in organizations are presented in this course. Students will have opportunities to assess their current leadership skills and identify strategies to develop their leadership capabilities through self-assessments and case studies.

**Term Offered:** Spring, Fall**MGMT 4880 Sports Leadership**

[3 credit hours]

The intent of this course is to provide the opportunity for the student to gain information and a better understanding of the various practices associated with sports leadership and management. Through cases, experiential exercises, teamwork, discussion, and exams, students will develop the skills needed to be effective leaders in the sports industry.

**Term Offered:** Fall

**MGMT 4900 Seminar On Contemporary Issues In Management**

[3 credit hours]

This seminar is designed to facilitate applications of managerial skills, tools and techniques in meeting contemporary challenges in organizations.

**Prerequisites:** BUAD 3030 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MGMT 4910 Research In Human Resource Management**

[1-3 credit hours]

Students have the opportunity to conduct an intensive investigation in a Human Resource Management area, supervised by a departmental faculty member. A formal paper is expected at the study's end.

**Prerequisites:** (HURM 3220 with a minimum grade of D- and BLAW 3550 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

**MGMT 4940 Management Internship**

[3 credit hours]

A supervised work experience for outstanding students. The internship involves practical experience. A written report is required of the student.

**Term Offered:** Spring, Summer, Fall

## Marketing (MKTG)

**MKTG 3130 Supply Chain Management**

[3 credit hours]

This course presents an integrated approach to value chain management and analyzes key challenges, practices and trends concerning primary business functions and processes. The course also examines the strategic ramifications for the supply chain in an emerging digital economy.

**Prerequisites:** BUAD 2080 with a minimum grade of D- or BMGT 2110 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MKTG 3140 International Marketing**

[3 credit hours]

Course focuses on developing an international marketing plan. Foreign country target market selection and development of a plan of action are explored in hands-on learning experience.

**Prerequisites:** BUAD 3010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MKTG 3280 Digital Marketing**

[3 credit hours]

A study of digital marketing management, including market opportunity and environmental assessment, Web presence and value propositions, and special issues concerning marketing mix design and implementation. Students will gain a basic understanding of digital marketing concepts – including an introduction to digital marketing metrics and online advertising— in order to develop a strategic digital marketing plan.

**Prerequisites:** BUAD 3010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MKTG 3380 Digital Content Development**

[3 credit hours]

An exploration of inbound, branded content strategies across digital marketing channels. Students will explore written and visual content development to enhance the overall customer experience. This is an applied course where students will be introduced to frameworks and best practices on content creation and planning in order to optimize effective content for a brand's target market.

**Prerequisites:** MKTG 3280 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MKTG 3480 Digital Marketing Tools and Analytics**

[3 credit hours]

This is a hands-on course examining the strategic use of the Internet and other digital technologies in order to improve an organization's marketing efforts. Students will explore online marketing strategies, navigate social media marketing, and utilize marketing analytic tools, resulting in an industry-recognized, digital marketing certification.

**Prerequisites:** MKTG 3280 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MKTG 3690 Marketing Communications**

[3 credit hours]

This course focuses on communication tools in marketing, including advertising, sales promotion, direct marketing, publicity, and more. Students will analyze the objectives of these communication tools, evaluate the effectiveness of each, and develop an integrated marketing communications strategy. Course includes a focus on managerial decision making, as well as legal and ethical aspects of promotion.

**Prerequisites:** BUAD 3010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MKTG 3850 Buyer Behavior And Relationship Marketing**

[3 credit hours]

Utilization of the behavioral sciences for the analysis of both consumer and business markets. Designing marketing programs to build strong seller-buyer relationships.

**Prerequisites:** BUAD 3010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MKTG 3880 Marketing Research And Data Analytics**

[3 credit hours]

This course addresses the fundamentals of marketing information systems, marketing research, and data analytics utilized in understanding the marketing function. Emphasis is on searching, developing, and providing information for marketing decision-making using both traditional marketing research tools, data mining, and inbound marketing analytics.

**Prerequisites:** BUAD 2070 with a minimum grade of D- and BUAD 3010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MKTG 3920 Sports Marketing**

[3 credit hours]

This course examines the world of sports as a business and will focus on attracting the ultimate customer-sports fans in an increasingly competitive, fragmented and global service. The course will discuss the management of sports at the professional, collegiate and special event levels focusing on the role marketing plays in planning and decision-making in attracting fans and other major customer—sponsors.

**Prerequisites:** BUAD 3010 with a minimum grade of D-

**MKTG 4130 Marketing Analysis And Decision Making**

[3 credit hours]

This capstone course integrates marketing functional and strategic knowledge learned throughout the major in order to sharpen students' integrative marketing decision-making abilities. The course utilizes case analysis, simulation, and/or project-based analysis.

**Prerequisites:** (MKTG 3880 with a minimum grade of D- and MKTG 3850 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

**MKTG 4220 International Sourcing, Logistics And Transportation**

[3 credit hours]

This course provides extensive insight of foreign trade practices and decision-making criteria attendant to international sourcing, logistics and transportation management.

**Prerequisites:** BUAD 2080 with a minimum grade of D- or BMGT 2110 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MKTG 4540 Business Marketing**

[3 credit hours]

Analysis of business markets and development of programs to market industrial business-to-business products/services.

**Prerequisites:** BUAD 3010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MKTG 4940 Marketing Internship**

[1-3 credit hours]

Receive practical business experience working in an organization.

**Term Offered:** Spring, Summer, Fall

**MKTG 4980 Special Topics**

[3 credit hours]

Analysis of current issues in Marketing, International Business, or Sales.

**Prerequisites:** BUAD 3010 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MKTG 4990 Independent Study**

[1-3 credit hours]

Independent study in marketing, international business, or business economics. Student must submit a proposal to be approved by a department faculty member prior to enrolling in the course.

**Term Offered:** Spring, Summer, Fall

## Marketing and Sales Technology (MARS)

**MARS 1010 Marketing Principles**

[3 credit hours]

A theoretical and practical understanding of marketing issues from both a micro and macro perspective: environmental forces, ethical and social responsibility, consumer buying behavior, target market analysis, market segmentation, branding and packaging, promotion, advertising, personal selling and pricing decisions.

**Term Offered:** Spring, Summer, Fall

## Mathematics (MATH)

**MATH 1180 Reasoning With Mathematics**

[3 credit hours]

Reasoning with Mathematics will prepare students for an increasingly information-based society. Students will acquire the skills necessary to make rational decisions based on real data and evaluate numerical information. They will be exposed to general methods of inquiry that apply in a wide variety of settings. They will be able to critically assess arguments and make rational decisions. Finally, students will develop the ability to judge the strengths and limitations of quantitative approaches.

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 1200 Mathematical Modeling and Problem Solving**

[4 credit hours]

Mathematical modeling of data using linear, quadratic, rational, and radical functions in their numerical, symbolic, graphic, and verbal forms. Problem solving methods and strategies will be emphasized. Course is not applicable toward the undergraduate Mathematics major requirements. Math core course.

**Term Offered:** Spring, Summer, Fall

Core Mathematics

**MATH 1210 Mathematics For Education Majors I**

[3 credit hours]

Principles of elementary number theory, base systems, foundations of arithmetic operations, fractions, decimals and problem solving techniques. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** MATH 1180 with a minimum grade of C- or MATH 1200 with a minimum grade of C- or Aleks Math Placement Test with a score of 46 or Aleks Math Placement Retest with a score of 46 or ACT Math with a score of 20 or Math - Coll Algebra Placement with a score of 10 or Math - Elem Algebra Placement with a score of 12 or SAT Mathematics with a score of 480 or MATH SECTION SCORE with a score of 510

**Term Offered:** Spring, Fall

Core Mathematics

**MATH 1220 Mathematics For Education Majors II**

[3 credit hours]

Development of integers, rational numbers and real numbers; probability, statistics, informal geometry, geometric figures and measurements. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** MATH 1210 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 1310 College Algebra Corequisite Lab**

[0 credit hours]

Corequisite course associated with MATH 1320. Learning experiences to develop skills and to enhance the material presented in MATH 1320. Placement based on departmental guidelines.

**Term Offered:** Spring, Fall

**MATH 1320 College Algebra**

[3 credit hours]

Number system; elementary theory of equations and inequalities; functions and relations; exponentials and logarithms; systems of equations and topics in analytic geometry. Course is not applicable toward the undergraduate Mathematics major requirements. No credit given for students who have credit for MATH 1340.

**Prerequisites:** (High School GPA with a score of 3.0 and (ACT Math with a score of 18 or Aleks Math Placement Test with a score of 44 or Aleks Math Placement Retest with a score of 44 or SAT Mathematics with a score of 500 or MATH SECTION SCORE with a score of 460 or MATH 1200 with a minimum grade of C+ or MATH 1180 with a minimum grade of B+) or (MATH 1310 (may be taken concurrently) with a minimum grade of C and (ACT Math with a score of 16 or Aleks Math Placement Test with a score of 36 or Aleks Math Placement Retest with a score of 36 or SAT Mathematics with a score of 430 or MATH SECTION SCORE with a score of 390 or MATH 1200 with a minimum grade of C- or MATH 1180 with a minimum grade of C-)) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 56 or Aleks Math Placement Retest with a score of 56 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560 or MATH 1200 with a minimum grade of C+ or MATH 1180 with a minimum grade of B+) or (MATH 1310 (may be taken concurrently) with a minimum grade of C and (ACT Math with a score of 20 or Aleks Math Placement Test with a score of 48 or Aleks Math Placement Retest with a score of 48 or SAT Mathematics with a score of 520 or MATH SECTION SCORE with a score of 490 or MATH 1200 with a minimum grade of C- or MATH 1180 with a minimum grade of C-)) or Math - Coll Algebra Placement with a score of 10

**Term Offered:** Spring, Summer, Fall  
Core Mathematics, OT36 Mathematics

**MATH 1330 Trigonometry**

[3 credit hours]

Definitions and graphs of trigonometric functions and their inverses, solving trigonometric equations, applications and topics in analytic geometry. Course is not applicable toward the undergraduate Mathematics major requirements. No credit given for students who have credit for MATH 1340.

**Prerequisites:** (High School GPA with a score of 3.25 and (ACT Math with a score of 20 or Aleks Math Placement Test with a score of 48 or Aleks Math Placement Retest with a score of 48 or SAT Mathematics with a score of 520 or MATH SECTION SCORE with a score of 490)) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 66 or Aleks Math Placement Retest with a score of 66 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1320 with a minimum grade of C- or Math - Coll Algebra Placement with a score of 15

**Term Offered:** Spring, Summer, Fall  
Core Mathematics, OT36 Mathematics

**MATH 1340 College Algebra And Trigonometry**

[0-5 credit hours]

Functions and graphs, exponential and logarithmic functions, trigonometric functions and applications, systems of equations and topics in analytic geometry. No credit for students who have credit for MATH 1320 or 1330.

**Prerequisites:** (High School GPA with a score of 3.25 and (ACT Math with a score of 20 or Aleks Math Placement Test with a score of 48 or Aleks Math Placement Retest with a score of 48 or SAT Mathematics with a score of 520 or MATH SECTION SCORE with a score of 490)) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 66 or Aleks Math Placement Retest with a score of 66 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1320 with a minimum grade of C- or (Math - Coll Algebra Placement with a score of 15 and Math - Trigonometry Placement with a score of 9)

**Term Offered:** Spring, Fall  
Core Mathematics, OT36 Mathematics

**MATH 1730 Calculus with Applications to Business and Finance**

[0-5 credit hours]

An introduction to differential and integral calculus. Topics include limits, derivatives, maxima/minima, indefinite and definite integrals with an emphasis on business applications and technology use.

**Prerequisites:** High School GPA with a score of 3.5 and (ACT Math with a score of 20 or Aleks Math Placement Test with a score of 48 or Aleks Math Placement Retest with a score of 48 or SAT Mathematics with a score of 520 or MATH SECTION SCORE with a score of 490) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 68 or Aleks Math Placement Retest with a score of 68 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1320 with a minimum grade of C- or MATH 1330 with a minimum grade of C- or MATH 1340 with a minimum grade of C- or Math - Coll Algebra Placement with a score of 15

**Term Offered:** Spring, Summer, Fall  
Core Mathematics, OT36 Mathematics

**MATH 1750 Calculus For The Life Sciences With Applications I**

[0-4 credit hours]

Definitions of trigonometric functions, solving trigonometric equations, functions, limits and derivatives, exponential and logarithmic functions, and applications. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** High School GPA with a score of 3.5 and (ACT Math with a score of 20 or Aleks Math Placement Test with a score of 48 or Aleks Math Placement Retest with a score of 48 or SAT Mathematics with a score of 520 or MATH SECTION SCORE with a score of 490) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 68 or Aleks Math Placement Retest with a score of 68 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1320 with a minimum grade of C- or MATH 1330 with a minimum grade of C- or MATH 1340 with a minimum grade of C- or Math - Coll Algebra Placement with a score of 15

**Term Offered:** Spring, Summer, Fall  
Core Mathematics, OT36 Mathematics

**MATH 1760 Calculus For The Life Sciences With Applications II**

[0-3 credit hours]

Indefinite and definite integrals, probability, vectors, least squares, differential equations. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** MATH 1750 with a minimum grade of C- or MATH 1850 with a minimum grade of C- or MATH 1830 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 1830 Calculus I For Mathematicians, Scientists And Educators**

[4 credit hours]

Limits, differentiation, Fundamental Theorem of Calculus, Mean Value Theorem, curve sketching, maxima/minima, definite and indefinite integrals, applications. The emphasis is on the rigorous aspects and foundational ideas of calculus. Of interest to students requiring a conceptual understanding of calculus. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** High School GPA with a score of 3.5 and (Aleks Math Placement Test with a score of 68 or Aleks Math Placement Retest with a score of 68 or Math - Trigonometry Placement with a score of 12) and (ACT Math with a score of 24 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560 or Aleks Math Placement Test with a score of 76 or Aleks Math Placement Retest with a score of 76 or Math - Trigonometry Placement with a score of 12) and (ACT Math with a score of 27 or SAT Mathematics with a score of 640 or MATH SECTION SCORE with a score of 620) or (Math - Coll Algebra Placement with a score of 15 and Math - Trigonometry Placement with a score of 12) or MATH 1340 with a minimum grade of C- or MATH 1330 with a minimum grade of C-

**Term Offered:** Fall

Core Mathematics, OT36 Mathematics

**MATH 1840 Calculus II For Mathematicians, Scientists And Educators**

[4 credit hours]

Applications and techniques of integration, polar coordinates and calculus of plane curves, infinite series and Taylor series, vectors and geometry of space. The emphasis is on the rigorous aspects and foundational ideas of calculus. Of interest to students requiring a conceptual understanding of calculus.

**Prerequisites:** MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C- or MATH 1920 with a minimum grade of C-

**Term Offered:** Spring, Fall

Core Mathematics, OT36 Mathematics

**MATH 1850 Single Variable Calculus I**

[0-4 credit hours]

Limits, differentiation, Fundamental Theorem of Calculus, curve sketching, maxima/minima, definite and indefinite integrals, applications. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** High School GPA with a score of 3.5 and (Aleks Math Placement Test with a score of 68 or Aleks Math Placement Retest with a score of 68 or Math - Trigonometry Placement with a score of 12) and (ACT Math with a score of 24 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560 or Aleks Math Placement Test with a score of 76 or Aleks Math Placement Retest with a score of 76 or Math - Trigonometry Placement with a score of 12) and (ACT Math with a score of 27 or SAT Mathematics with a score of 640 or MATH SECTION SCORE with a score of 620) or (Math - Coll Algebra Placement with a score of 15 and Math - Trigonometry Placement with a score of 12) or MATH 1340 with a minimum grade of C- or MATH 1330 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 1860 Single Variable Calculus II**

[0-4 credit hours]

Applications and techniques of integration, polar coordinates and calculus of plane curves, infinite series and Taylor series, vectors and geometry of space.

**Prerequisites:** MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 1890 Elementary Linear Algebra**

[3 credit hours]

Matrix algebra, systems of linear equations, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, applications, additional topics chosen from Google's page rank algorithm, Digital Image Compression, and others.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 1980 Topics In Mathematics**

[1-4 credit hours]

Selected topics in mathematics.

**Term Offered:** Spring, Fall

**MATH 2190 Foundations of Mathematics**

[3 credit hours]

This course lays the logical and set-theoretic foundations for upper level mathematics courses. Topics include: logical connectives, quantifiers; techniques of proof; set operations; functions; equivalence classes; partitions, cardinality, natural numbers, rationals, real numbers.

**Prerequisites:** MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C-

**Term Offered:** Spring

**MATH 2450 Calculus For Engineering Technology I**

[0-8 credit hours]

Differential calculus of algebraic and trigonometric functions, including limits, curve sketching, motion, maxima/minima, related rates, integral calculus of algebraic functions.

**Prerequisites:** High School GPA with a score of 3.5 and (Aleks Math Placement Test with a score of 68 or Aleks Math Placement Retest with a score of 68 or Math - Trigonometry Placement with a score of 12) and (ACT Math with a score of 24 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or (Aleks Math Placement Test with a score of 76 or Aleks Math Placement Retest with a score of 76 or Math - Trigonometry Placement with a score of 12) and (ACT Math with a score of 27 or SAT Mathematics with a score of 640 or MATH SECTION SCORE with a score of 620) or (Math - Coll Algebra Placement with a score of 15 and Math - Trigonometry Placement with a score of 12) or MATH 1340 with a minimum grade of C- or MATH 1330 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 2460 Calculus For Engineering Technology II**

[0-4 credit hours]

Transcendental functions, methods of integration, applications of the integral, polar coordinates, vectors and vector operation, lines and planes, parametric equations.

**Prerequisites:** MATH 2450 with a minimum grade of C- or MATH 1850 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 2600 Introduction To Statistics**

[3 credit hours]

An introduction to descriptive and inferential statistical methods including point and interval estimation, hypothesis testing and regression. No credit allowed if taken after MATH 3610 or 4680; credit not allowed for both MATH 2600 and 2630. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** High School GPA with a score of 3.0 and (ACT Math with a score of 18 or Aleks Math Placement Test with a score of 44 or Aleks Math Placement Retest with a score of 44 or SAT Mathematics with a score of 500 or MATH SECTION SCORE with a score of 460) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 56 or Aleks Math Placement Retest with a score of 56 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1200 with a minimum grade of C+ or MATH 1180 with a minimum grade of B+ or Math - Coll Algebra Placement with a score of 10

**Term Offered:** Spring, Summer, Fall

Core Mathematics, OT36 Mathematics

**MATH 2620 Discrete Probability**

[3 credit hours]

Sample spaces, events, counting techniques, probability distributions and their applications. No credit if taken after 4680. Course is not applicable toward the undergraduate Mathematics major requirements.

**Prerequisites:** (High School GPA with a score of 3 and ACT Math with a score of 18 or Aleks Math Placement Test with a score of 44 or Aleks Math Placement Retest with a score of 44 or SAT Mathematics with a score of 500 or MATH SECTION SCORE with a score of 460) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 56 or Aleks Math Placement Retest with a score of 56 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1200 with a minimum grade of C+ or MATH 1180 with a minimum grade of B+ or Math - Coll Algebra Placement with a score of 10

**Term Offered:** Spring

**MATH 2640 Statistics for Applied Science**

[3 credit hours]

Introduction to statistical methods. Modeling relationships between variables. Basic concepts in probability. Introduction to design of experiments, surveys and observational studies. Overview of statistical procedures used in applied science literature.

**Prerequisites:** High School GPA with a score of 3.0 and (ACT Math with a score of 18 or Aleks Math Placement Test with a score of 44 or Aleks Math Placement Retest with a score of 44 or SAT Mathematics with a score of 500 or MATH SECTION SCORE with a score of 460) or (ACT Math with a score of 24 or Aleks Math Placement Test with a score of 56 or Aleks Math Placement Retest with a score of 56 or SAT Mathematics with a score of 580 or MATH SECTION SCORE with a score of 560) or MATH 1200 with a minimum grade of C+ or MATH 1180 with a minimum grade of B+ or Math - Coll Algebra Placement with a score of 10

**Term Offered:** Spring, Fall

Core Mathematics

**MATH 2850 Elementary Multivariable Calculus**

[4 credit hours]

Geometry of functions of several variables, partial differentiation, multiple integrals, vector algebra and calculus (including Theorems of Green, Gauss and Stokes), and applications.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**MATH 2860 Elementary Differential Equations**

[3 credit hours]

An introduction to the analysis and solution of ordinary differential equations with emphasis on the fundamental techniques for solving linear differential equations.

**Prerequisites:** MATH 2850 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**MATH 2890 Numerical Methods And Linear Algebra**

[3 credit hours]

Topics include: matrices, characteristic roots, solution of linear and nonlinear equations, curve fitting, integration, differentiation and numerical solution of ordinary differential equations. MATLAB is introduced and used to analyze problems. Additional topics are chosen from Google's page rank algorithm, Digital Image Compression, and others.

**Prerequisites:** MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C- or MATH 1920 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**MATH 3000 Symbolic Logic**

[3 credit hours]

A study of propositional and predicate logic, the symbolic techniques used to evaluate deductive arguments. Topics may include computability, set theory, Bayesianism and other formal systems with mathematical or philosophical relevance.

**Prerequisites:** MATH 1180 with a minimum grade of C-

**Term Offered:** Spring, Fall

**MATH 3190 Introduction To Mathematical Analysis**

[3 credit hours]

This course is intended to introduce students to mathematical analysis. The focus will be on learning to write clear, rigorous proofs. Topics include set theory and logic, the real number system and its topology, sequences, limits and continuity.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-

**Term Offered:** Fall

**MATH 3200 Number Theory**

[3 credit hours]

Divisibility, congruences, diophantine equations, numerical functions, quadratic reciprocity.

**Prerequisites:** MATH 2190 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Spring, Fall

**MATH 3320 Introduction To Abstract Algebra**

[3 credit hours]

Sets and mappings, integers, groups, rings and applications.

**Prerequisites:** MATH 2190 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Spring

**MATH 3440 Fundamentals Of Modern Geometry I**

[3 credit hours]

Euclidean geometry from a modern viewpoint, constructions and transformations. Primarily for students in secondary education.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-

**Term Offered:** Fall

**MATH 3450 Fundamentals Of Modern Geometry II**

[3 credit hours]

Euclidean geometry from a modern viewpoint, constructions and transformations. Primarily for students in secondary education.

**Prerequisites:** MATH 3440 with a minimum grade of C-

**Term Offered:** Spring

**MATH 3510 History Of Mathematics**

[3 credit hours]

Contributions to the development of mathematics by various groups and individuals from the earliest history to the present, with special emphasis on the elementary branches: arithmetic, algebra, geometry and calculus.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-

**Term Offered:** Fall

**MATH 3610 Statistical Methods I**

[3 credit hours]

Basic probability, sampling, descriptive statistics, statistical inference, regression, correlation, analysis of variance, goodness of fit, model formulation and testing.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Summer, Fall

**MATH 3620 Statistical Methods II**

[3 credit hours]

Multiple regression, analysis of covariance, standard experimental designs, contingency tables, nonparametric methods and methods for sample surveys.

**Prerequisites:** MATH 3610 with a minimum grade of C-

**Term Offered:** Spring

**MATH 3920 Junior Readings**

[1-3 credit hours]

Selected subjects in mathematics of special interest to students and the professor.

**Term Offered:** Spring, Summer, Fall

**MATH 4300 Linear Algebra I**

[3 credit hours]

Theory of vector spaces and linear transformations, including such topics as matrices, determinants, inner products, eigenvalues and eigenvectors, and rational and Jordan canonical forms.

**Prerequisites:** MATH 2190 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Fall

**MATH 4330 Abstract Algebra I**

[3 credit hours]

Arithmetic of the integers, unique factorization and modular arithmetic; group theory including normal subgroups, factor groups, cyclic groups, permutations, homomorphisms, the isomorphism theorems, abelian groups and p-groups.

**Prerequisites:** MATH 2190 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Fall

**MATH 4340 Abstract Algebra II**

[3 credit hours]

Ring theory including integral domains, field of quotients, homomorphisms, ideals, Euclidean domains, polynomial rings, vector spaces, roots of polynomials and field extensions.

**Prerequisites:** MATH 4330 with a minimum grade of C-

**Term Offered:** Spring



**MATH 4350 Applied Linear Algebra**

[3 credit hours]

Matrices, systems of equations, vector spaces, linear transformations, determinants, eigenvalues and eigenvectors, singular value decomposition, pseudoinverses, rank, numerical methods and applications to various areas, e.g., the Google Matrix or Digital Image Compression or others.

**Prerequisites:** MATH 1890 with a minimum grade of C- or MATH 2890 with a minimum grade of C-

**Term Offered:** Spring, Summer

**MATH 4380 Discrete Structures And Analysis Of Algorithms**

[3 credit hours]

Discrete mathematical structures for applications in computer science such as graph theory, combinatorics, and groups theory, asymptotics, recurrence relations and analysis of algorithms.

**Prerequisites:** MATH 3320 with a minimum grade of C- or MATH 4330 with a minimum grade of C-

**Term Offered:** Fall

**MATH 4450 Introduction To Topology I**

[3 credit hours]

Metric spaces, topological spaces, continuous maps, bases and subbases, closure and interior operators, products, subspaces, sums, quotients, separation axioms, compactness and local compactness.

**Prerequisites:** MATH 2190 with a minimum grade of C- or MATH 3190 with a minimum grade of C-

**Term Offered:** Fall

**MATH 4460 Introduction To Topology II**

[3 credit hours]

Connectedness and local connectedness, convergence, metrization, function spaces. The fundamental groups and its properties, covering spaces, classical applications, e.g. Jordan Curve Theorem, Fundamental Theorem of Algebra, Brouwer's Fixed Point Theorem.

**Prerequisites:** (MATH 4450 with a minimum grade of C- and MATH 3320 with a minimum grade of C-) or (MATH 4450 with a minimum grade of C- and MATH 4330 with a minimum grade of C-)

**Term Offered:** Spring

**MATH 4540 Classical Differential Geometry I**

[3 credit hours]

Smooth curves in Euclidean space including the Frenet formulae. Immersed surfaces with the Gauss map, principal curvatures and the fundamental forms. Special surfaces including ruled surfaces and minimal surfaces. Intrinsic Geometry including the Gauss Theorem Egregium.

**Prerequisites:** MATH 2860 with a minimum grade of C-

**MATH 4550 Classical Differential Geometry II**

[3 credit hours]

Tensors, vector fields, and the Cartan approach to surface theory, Bonnet's Theorem and the construction of surfaces via solutions of the Gauss Equation. Geodesics parallel transport, and Jacobi Fields. Theorems of a global nature such as Hilbert's Theorem or the Theorem of Hopf-Rinow.

**Prerequisites:** MATH 4540 with a minimum grade of C-

**MATH 4600 Advanced Statistical Methods I**

[3 credit hours]

Basics of descriptive statistics, study designs and statistical inference.

Properties of, and assumptions required for, inference for means, variances, and proportions from one and two-sample paired and unpaired studies. Introduction to ANOVA with multiple comparisons. Model assessment and diagnostics. Statistical software will be employed.

Opportunities to apply procedures to real data. Emphasis placed on the foundations to approaches in introductory statistics.

**Prerequisites:** MATH 2600 with a minimum grade of D- or MATH 2640 with a minimum grade of D- or MATH 3610 with a minimum grade of D- or MATH 4690 with a minimum grade of D-

**Term Offered:** Fall

**MATH 4610 Applications Of Statistics II**

[3 credit hours]

Continuation of Applications of Statistics I.

**Prerequisites:** MATH 4600 with a minimum grade of C-

**Term Offered:** Spring

**MATH 4620 Theory Of Interest**

[3 credit hours]

This course covers the measurement of interest, certain annuities, yield rates, amortization and sinking funds, bonds and other securities and application of interest theory.

**Prerequisites:** MATH 1840 with a minimum grade of C- or MATH 1860 with a minimum grade of C-

**Term Offered:** Spring, Fall

**MATH 4640 Statistical Computing**

[3 credit hours]

Modern statistical computing, including programming tools, modern programming methodologies, design of data structures and algorithms, numerical computing and graphics. Additional topics selected from simulation studies, rejection sampling, importance sampling, Monte Carlo integration, and bootstrapping.

**Prerequisites:** MATH 3610 with a minimum grade of C- or MATH 4600 with a minimum grade of C- or MATH 4690 with a minimum grade of C-

**Term Offered:** Fall

**MATH 4680 Introduction To Theory Of Probability**

[3 credit hours]

Probability spaces, random variables, probability distributions, moments and moment generating functions, limit theorems, transformations and sampling distributions.

**Prerequisites:** MATH 2850 with a minimum grade of C-

**Term Offered:** Summer, Fall

**MATH 4690 Introduction To Mathematical Statistics**

[3 credit hours]

Sampling distributions, point and interval estimation, hypothesis testing, regression and analysis of variance.

**Prerequisites:** MATH 4680 with a minimum grade of C-

**Term Offered:** Spring

**MATH 4710 Methods Of Numerical Analysis I**

[3 credit hours]

Floating point arithmetic; polynomial interpolation; numerical solution of nonlinear equations; Newton's method. Likely topics include: numerical differentiation and integration; solving systems of linear equations; Gaussian elimination; LU decomposition; Gauss-Seidel method.

**Prerequisites:** MATH 2860 with a minimum grade of C-**Term Offered:** Spring, Fall**MATH 4720 Methods Of Numerical Analysis II**

[3 credit hours]

Likely topics include: Computation of eigenvalues and eigenvectors; solving systems of nonlinear equations; least squares approximations; rational approximations; cubic splines; fast Fourier transforms; numerical solutions to initial value problems; ordinary and partial differential equations.

**Prerequisites:** MATH 4710 with a minimum grade of C-**Term Offered:** Spring**MATH 4760 Actuarial Mathematics I**

[3 credit hours]

Survival distributions and life tables, life insurance, life annuities, benefit premiums and reserves and multiple life functions are some topics covered in this course.

**Prerequisites:** MATH 4680 with a minimum grade of C-**Term Offered:** Fall**MATH 4770 Actuarial Mathematics II**

[3 credit hours]

Continuation of Actuarial Mathematics I. Multiple decrement models, collective risk models and applications of risk theory.

**Prerequisites:** MATH 4760 with a minimum grade of C-**Term Offered:** Spring**MATH 4780 Advanced Calculus**

[3 credit hours]

Extrema for functions of one or more variables, Lagrange multipliers, indeterminate forms, inverse and implicit function theorems, uniform convergences, power series, transformations, Jacobians, multiple integrals.

**Prerequisites:** MATH 2850 with a minimum grade of C-**MATH 4800 Ordinary Differential Equations**

[3 credit hours]

Modern theory of differential equations; transforms and matrix methods; existence theorems and series solutions; and other selected topics.

**Prerequisites:** MATH 2860 with a minimum grade of C-**Term Offered:** Spring, Fall**MATH 4810 Partial Differential Equations**

[3 credit hours]

First and second order equations; numerical methods; separation of variables; solutions of heat and wave equations using eigenfunction techniques; and other selected topics.

**Prerequisites:** MATH 2860 with a minimum grade of C-**Term Offered:** Spring**MATH 4820 Introduction To Real Analysis I**

[3 credit hours]

The real number system; continuity and differentiability of functions; convergence of sequences and series; applications.

**Prerequisites:** MATH 2190 with a minimum grade of C- or MATH 3190 with a minimum grade of C-**Term Offered:** Fall**MATH 4830 Introduction To Real Analysis II**

[3 credit hours]

Riemann Integral; limits of functions; elementary metric space theory including compactness, connectedness and completeness. Optional topics include differentiable functions on  $\mathbb{R}^n$ ; the Implicit and Inverse Function Theorems.

**Prerequisites:** MATH 4820 with a minimum grade of C-**Term Offered:** Spring**MATH 4880 Complex Variables**

[3 credit hours]

Analytic functions; Cauchy's theorem; Taylor and Laurent series; residues; contour integrals; conformal mappings, analytic continuation and applications.

**Prerequisites:** MATH 2860 with a minimum grade of C-**Term Offered:** Spring**MATH 4900 Senior Seminar**

[1-3 credit hours]

Seminar on a topic not usually covered in a course. Library research and paper to be expected.

**Term Offered:** Spring, Summer, Fall**MATH 4920 Senior Readings**

[1-3 credit hours]

Selected subjects in mathematics of special interest to students and the professor. (By arrangement with professor and student.)

**Term Offered:** Spring, Summer, Fall**MATH 4940 Internship in the Mathematical Sciences**

[3 credit hours]

MATH 4940 Co-Op Experience [3 credit hours] Approved internship experience. Course may be repeated for credit with departmental permission. Terms Offered: Spring, Summer, Fall

**Term Offered:** Spring, Summer, Fall**MATH 4960 Actuarial Science Problem Seminar**

[1-3 credit hours]

The primary activity will be student solution and presentation of problems of a type given on actuarial exams.

**Term Offered:** Spring, Fall

## Mechanical Engineering Technology (MET)

**MET 1020 Technical Drawing**

[3 credit hours]

Essentials of dimensioning, size, position and form tolerancing and their application in shop processes. Pictorial drawings are created freehand and with the use of drawing instruments.

**Term Offered:** Spring, Fall

**MET 1050 Computers for Engineering Technology**

[3 credit hours]

Concepts and techniques on the application of computers to the solution of manufacturing and engineering technology problems. Provides an introduction to computer operating systems, programming language and technical software.

**Term Offered:** Spring, Fall**MET 1110 Metal Machining And Processes**

[3 credit hours]

Material and machining processes dealing with production methods, machining capabilities, tolerances. Metal working with lathe, mill, etc., along with processes such as molding, stamping, forging, etc.

**Term Offered:** Spring, Fall**MET 1120 Metal Machining & Processes Lab**

[1 credit hour]

Provides students with an opportunity to gain hands-on experience with machine tools and gauging measurement instruments.

**Prerequisites:** MET 1020 with a minimum grade of D- and MET 1110 with a minimum grade of D-**Term Offered:** Spring, Fall**MET 1250 Computer Aided Drafting and Design**

[3 credit hours]

Introduction to two-dimensional and three-dimensional Computer Aided Drafting. Laboratory based experiences with creating and dimensioning working drawings, part libraries, entity insertion, graphics manipulation and customization.

**Prerequisites:** MET 1020 with a minimum grade of D- and MET 1050 with a minimum grade of D-**Term Offered:** Spring, Fall**MET 2050 Fluid And Hydraulic Mechanics**

[0-4 credit hours]

Application of physical principles for the design of systems to transport liquids in closed hydraulic or process piping systems; friction, pumping, flow meters and gauges.

**Prerequisites:** PHYS 2010 with a minimum grade of D- or PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of D- or PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MET 2100 Statics For Technology**

[3 credit hours]

Review and extension of static force analysis: free-body diagrams, forces, moments, dry friction and static equilibrium applied to machines, mechanisms, trusses and frames.

**Prerequisites:** PHYS 2010 with a minimum grade of D- or PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of D- or PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MET 2120 Strength Of Materials For Technology**

[0-4 credit hours]

Introduction to the study of stress distribution and deformation of elastic materials due to applied loads. Consideration of stress, strain, compression, tension, shear, torsion, moments and combined loading in basic machine elements.

**Prerequisites:** MET 2100 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MET 2150 Numerical Control Applications**

[0-3 credit hours]

Survey of tooling and production activities adaptable to numerical control equipment and processes. Includes terminology, definitions and functions. Students will learn how to create part programs for CNC machinery.

**Prerequisites:** (MATH 1330 with a minimum grade of D- or MATH 1340 with a minimum grade of D-) and (ENGT 1050 with a minimum grade of D- or MET 1050 with a minimum grade of D-) and MET 1110 with a minimum grade of D- and MET 1120 with a minimum grade of D- and MET 1250 with a minimum grade of D-**Term Offered:** Spring**MET 2210 Technical Thermodynamics**

[4 credit hours]

Analysis of thermodynamic concepts as they apply to heating and power production; conservation of energy, work and heat, engines and refrigeration.

**Prerequisites:** (PHYS 2010 with a minimum grade of D- or (PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of D- or PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-) and MET 1050 with a minimum grade of D- and MATH 2450 with a minimum grade of D-) or (PHYS 2010 with a minimum grade of D- or (PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of D- or PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-) and MATH 2450 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall**MET 2310 Materials Science**

[3 credit hours]

Study of the relationships between structures and properties for common engineering materials, including metals, polymers, ceramics and composites. Mechanical behavior, temperature effects, heat treatment, corrosion and electrical properties are covered.

**Prerequisites:** ENGT 3010 with a minimum grade of D- and CHEM 1230 with a minimum grade of D- and CHEM 1280 with a minimum grade of D-  
**Corequisites:** MET 2320**MET 2320 Materials Science Laboratory**

[0-1 credit hours]

Laboratory based study of the relationships between structures and properties for common engineering materials, including metals, polymers, ceramics and composites. Mechanical behavior, temperature effects, heat treatment, corrosion and electrical properties are covered.

**Prerequisites:** ENGT 3010 with a minimum grade of D- and CHEM 1230 with a minimum grade of D- and CHEM 1280 with a minimum grade of D-  
**Corequisites:** MET 2310

**MET 2350 Advanced Computer Aided Drafting and Design**

[3 credit hours]

Continuation of MET 1250. Topics covered include attributes, with attention to geometric tolerancing and true dimensioning. Application of three-dimensional modeling techniques and the preparation of detail drawings from the model.

**Prerequisites:** MET 1250 with a minimum grade of D-**Term Offered:** Spring, Fall**MET 2980 Special Topics**

[1-4 credit hours]

Student performs work on a specialized project of an advanced nature under the supervision of a Mechanical Engineering Technology faculty member.

**Term Offered:** Spring, Summer, Fall**MET 3100 Applied Thermodynamics**

[0-4 credit hours]

Basic principles and laws of classical thermodynamics, equations of state, reversibility and entropy applied to processes and cycles for ideal and non-ideal substances. Special attention will be given to gas power cycles, vapor and combined power cycles, refrigeration cycle. Air conditioning processes. Mechanics of heat transfer.

**Prerequisites:** MET 2210 with a minimum grade of D- and (MATH 1860 with a minimum grade of D- or MATH 2460 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall**MET 3200 Mechanical Design I**

[3 credit hours]

Introduction to the engineering design process. Analysis of stress, strain, deflection and fatigue in mechanical design. Design of beams, columns, springs and machine elements.

**Prerequisites:** (MET 3400 with a minimum grade of D- and MET 2120 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall**MET 3400 Applied Dynamics**

[3 credit hours]

Static force and moment analysis using vector methods. Applications of dry friction. Analysis of structures and machines. Dynamic analysis using force and acceleration, energy and momentum methods.

**Prerequisites:** (MATH 1860 with a minimum grade of D- or MATH 2460 with a minimum grade of D-) and MET 2100 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MET 4100 Applied Fluid Mechanics**

[0-4 credit hours]

Fundamentals of fluid statics and dynamics including differential analysis, dimensional analysis and similitude, laminar and turbulent flow, viscosity and boundary layer concepts, and compressible flow. Application of these principles to practical, applied problems. Flow of fluids in pipes and conduits. Pump selection and application. The design and analysis of HVAC ducts. Drag and Lift.

**Prerequisites:** MET 2050 with a minimum grade of D- and (MATH 1860 with a minimum grade of D- or MATH 2460 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall**MET 4200 Mechanical Design II**

[3 credit hours]

Design and application of mechanical components and machine elements including shafts, gears, gear drives, belt drives, chain drives, fasteners, power screws, clutches, brakes and machine frames.

**Prerequisites:** MET 3200 with a minimum grade of D- and MET 2310 with a minimum grade of D- and MET 2320 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MET 4600 Engineering Safety**

[3 credit hours]

Application of human factors and engineering practices toward accident prevention and elimination of hazards. Topics include liability, standards, OSHA, hazard control, accident investigation and safety management.

**Term Offered:** Fall

## Mechanical, Industrial and Manufacturing Engineering (MIME)

**MIME 1000 Orientation To ME & IE**

[0-3 credit hours]

The mechanical engineering profession is discussed with emphasis on career opportunities. Orientation to the university campus, study skills and time management. Word processing, spreadsheets, e-mail, design projects, and MATLAB programming are studied.

**Term Offered:** Summer, Fall**MIME 1010 Professional Development**

[1 credit hour]

Social protocol and ethics in industry are reviewed. Resume writing and interview skills are developed. Course assists in preparing the student for the co-op experience in industry.

**Prerequisites:** MIME 1000 with a minimum grade of D-**Term Offered:** Spring, Summer**MIME 1100 Introduction to CAD**

[3 credit hours]

Techniques for visualization and representation of machine components using solid modeling and projection. Section views, orthographic projection, dimensioning and tolerancing. CAD techniques for solving vector problems.

**Term Offered:** Summer, Fall**MIME 1650 Materials Science & Engineering**

[0-3 credit hours]

Engineering properties of materials, the effect of atomic bonding and crystalline structure on the mechanical properties of metals, ceramics and polymers. Common measurement, testing and comparison techniques to aid in selection of materials. Laboratory experiences include compressive and tensile strength testing, the effects of heat upon strength, hardness and micro-structure, the effects of combining certain materials in a composite to improve overall mechanical properties.

**Prerequisites:** CHEM 1230 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

**MIME 2000 Measurements Laboratory**

[0-2 credit hours]

How to write engineering laboratory reports. Statistical analysis of experimental data, uncertainty analysis, general characteristics of measurement systems, static and dynamic measurements, computer data acquisition, applications to thermal, mechanical and electrical systems.

**Prerequisites:** EECS 2340 with a minimum grade of D- and (ENGL 1930 with a minimum grade of D- or ENGL 2950 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**MIME 2300 Engineering Dynamics**

[3 credit hours]

Kinematics of particles and rigid bodies. Thorough study of kinetics of particles and rigid bodies using Newton's laws of motion, work-energy methods, and impulse and momentum methods.

**Prerequisites:** CIVE 1150 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 2600 Engineering Economics**

[3 credit hours]

The study of micro-economic and macro-economic theories. Methods of economic analysis, including the time value of money, are described. Economic decision criteria are used to select best alternatives with emphasis in engineering. Impact of economic decisions on various sectors of society are discussed.

**Term Offered:** Spring, Fall

**MIME 2650 Manufacturing Processes**

[0-3 credit hours]

Manufacturing processes discussed include metal casting and forming such as forging, rolling, extrusion, stamping and drawing. Metal cutting processes such as turning, boring, drilling, milling, sawing and broaching are discussed. Polymer processes including injection molding and extrusion as well as ceramic part production are covered. Laboratory experiences include creating parts using many of these processes.

**Prerequisites:** MIME 1650 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 2700 Applied Measure & Instrument**

[4 credit hours]

A hands on introduction to engineering measurement methods and instrumentation, including electrical circuits, sensors, actuators, data acquisition, and system response.

**Prerequisites:** PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 2920 Special Projects**

[1-3 credit hours]

A special project by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for students interested in mechanical, industrial or manufacturing engineering early in their undergraduate program. Instructor will specify scope of project to correspond to credit hours.

**Term Offered:** Spring, Summer, Fall

**MIME 2980 Special Topics**

[1-3 credit hours]

A special topic at the undergraduate level in Mechanical, Industrial or Manufacturing Engineering to be offered as a course during a term by a faculty member. Credits will correspond to regular class meetings of one lecture hour per week per credit hour.

**Term Offered:** Spring, Summer, Fall

**MIME 3200 Senior Design Projects I**

[3 credit hours]

Students work in teams using knowledge gained in earlier courses to solve real design, manufacturing, and operational problems relevant to industry. Oral and written communications as well as teamwork are stressed. Other topics include: product liability, safety, ethics, design for manufacturing, project planning and scheduling, engineering economics, and quality assurance/quality control.

**Term Offered:** Spring

**MIME 3300 Design And Analysis Of Mechanical Systems**

[3 credit hours]

Design and analysis of mechanisms, gear trains, planetary gear trains, cam-and-follower devices with application to mechanical systems.

Motion, force, torque and vibration analysis. Balancing of rotating and reciprocating components in machines.

**Prerequisites:** MIME 2300 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 3310 Mechanical Design I**

[3 credit hours]

Applications of mechanics of materials to analysis and design of mechanical components; introduction to fracture mechanics; applications of failure theories to design of machine elements subjected to static and cyclic loadings.

**Prerequisites:** (CIVE 1160 with a minimum grade of D- and MIME 1650 with a minimum grade of D-)

**Corequisites:** MIME 3330

**Term Offered:** Spring, Summer, Fall

**MIME 3320 Mechanical Design II**

[3 credit hours]

Application of failure theories in static and fatigue loading to the design and analysis of mechanical elements including fasteners, power screws, welded joints, springs, bearings, gears, clutches, brakes and shafts.

**Prerequisites:** MIME 3310 with a minimum grade of C-

**Term Offered:** Spring, Summer, Fall

**MIME 3330 Mechanics Laboratory**

[0-1 credit hours]

This laboratory course consists of experiments in strength of materials and stress analysis. Experiments include stress analysis of straight and curved beams, analysis of torsion and combined stresses in shafts, stress concentrations, and determination of mechanical properties from tension tests and fatigue tests.

**Corequisites:** MIME 3310

**Term Offered:** Spring, Summer, Fall

**MIME 3360 Vibration Laboratory**

[0-1 credit hours]

This laboratory course will be taken concurrently with Mechanical Vibration and consists of experiments to determine the natural frequency of one degree of freedom systems, free and forced vibrations of lumped parameter systems, mode shapes and natural frequencies of multidegree of freedom systems, and mode shapes and natural frequencies of torsional vibration systems.

**Corequisites:** MIME 3370**Term Offered:** Spring, Summer, Fall**MIME 3370 Mechanical Vibration**

[3 credit hours]

Modeling mechanical systems, mechanical elements, equations of motion for single-DOF and multi-DOF systems, linearization of equations of motion, free and forced response, electrical systems, frequency response, feedback control systems.

**Prerequisites:** MIME 2300 with a minimum grade of D- and MATH 3860 with a minimum grade of D- or MATH 2860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-

**Corequisites:** MIME 3360**Term Offered:** Spring, Summer, Fall**MIME 3380 Modeling and Control of Engineering Systems**

[3 credit hours]

Physical modeling and feedback principles are applied for control of mechanical systems. Transient response, root locus and frequency response principles are applied to the control of basic mechanical and electrical systems.

**Prerequisites:** MIME 3370 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MIME 3400 Thermodynamics I**

[3 credit hours]

Introduction to thermal sciences with an emphasis on the first and second law of thermodynamics. Topics include conservation of energy for closed and open systems, thermodynamic properties and cycles and entropy production.

**Prerequisites:** (MATH 3860 with a minimum grade of D- or MATH 2860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-) and PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**MIME 3410 Thermodynamics II**

[3 credit hours]

Review of open and closed systems in thermodynamics, the Carnot principle and cycle efficiency concepts. Application to gas and vapor power cycles and refrigeration cycles. Thermodynamic property relations, gaseous mixtures and combustion.

**Prerequisites:** MIME 3400 with a minimum grade of D-**Corequisites:** MIME 3420**Term Offered:** Spring, Summer, Fall**MIME 3420 Fluids Laboratory**

[0-1 credit hours]

This laboratory course is to be taken with Fluid Mechanics and Thermodynamics II to illustrate the concepts in those courses.

Experiments include fluid statics, forces on a submerged surface, center of pressure, manometers, surface tension, flow visualization, Bernoulli's equation, control volume analysis, viscous flow in pipes, flow over bodies, turbomachinery, and thermodynamic cycles.

**Prerequisites:** MIME 2700 with a minimum grade of D-**Corequisites:** MIME 3410, MIME 3430**Term Offered:** Spring, Summer, Fall**MIME 3430 Fluid Mechanics**

[3 credit hours]

Fluid mechanics for mechanical engineers. Topics include fluid statics and dynamics, equations of motion, dimensional analysis, boundary layer theory, flow in pipes, turbulence, fluid machinery, potential flow, CFD and aerodynamics.

**Prerequisites:** MIME 3400 with a minimum grade of D-**Corequisites:** MIME 3420**Term Offered:** Spring, Summer, Fall**MIME 3440 Heat Transfer**

[3 credit hours]

A comprehensive study of conduction, convection and radiation.

Derivation and solution of differential equations related to heat transfer. Analysis of forced and free convection and heat exchangers. Dimensional analysis related to heat transfer.

**Prerequisites:** MIME 3430 with a minimum grade of D-**Corequisites:** MIME 3450**Term Offered:** Spring, Summer, Fall**MIME 3450 Energy Laboratory**

[0-1 credit hours]

This laboratory course is to be taken with Heat Transfer to illustrate the concepts in this course. Experiments include Fourier's Law, cooling of fins/rods, determination of free and forced convection heat transfer coefficients, heat exchangers, Stefan Boltzmann Law, surface emission, surface reflection.

**Corequisites:** MIME 3440**Term Offered:** Spring, Summer, Fall**MIME 3780 Engineering Management**

[3 credit hours]

The development of the fundamentals required in an engineering and manufacturing environment where technical competency is considered standard and an appreciation of the human behavioral responses to managerial policies and rules is essential. This course covers the basics of planning organizing, leading and control from the subordinates' as well as the manager's perspective.

**Term Offered:** Fall**MIME 3940 Co-Op Experience**

[1 credit hour]

Students in the Industrial and Mechanical Engineering programs are to enroll in this course during each of their approved Co-Op experiences.

**Prerequisites:** MIME 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

**MIME 3950 Co-op Experience**

[1 credit hour]

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

**Prerequisites:** MIME 3940 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 4000 Engineering Statistics I**

[3 credit hours]

This course introduces the student to the areas of probability theory and statistical inferences. Topics include sample spaces, the concepts of random variables, probability distributions; functions of random variables, transformation of variables, moment generating functions, sampling and estimation theory; T, F and chi-square distribution.

**Prerequisites:** MATH 2850 with a minimum grade of D- or MATH 2950 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 4040 Modern Manufacturing Methods**

[3 credit hours]

This course provides an overview of the philosophy, design and management of production factories throughout the world. This course explores the evolution and revolution of manufacturing since the 1960's and the numerous philosophical changes that have shaped the factory of today. The course examines the fundamental design of the factory in an effort to meet the demands of customers, culture of the organization, competitive situation, and pressures of marketing and management.

**Term Offered:** Fall

**MIME 4060 Manufacturing Engineering**

[3 credit hours]

The course provides an overview of advanced manufacturing processes, manufacturing management, nano- and bio-manufacturing processes and their applications.

**Prerequisites:** MIME 2650 with a minimum grade of D- and MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4080 Operations Research I**

[3 credit hours]

This course focuses on the mathematical methods of Operations Research and their applications in engineering. Topics include the optimal solution of deterministic and stochastic mathematical models, modeling process, linear programming, the simplex method, duality theory and sensitivity analysis.

**Prerequisites:** MIME 4000 with a minimum grade of D- and MATH 2860 with a minimum grade of D-

**MIME 4100 Manufactur Systems Simulation**

[3 credit hours]

Discrete and continuous simulation models are used to study queuing, networks, manufacturing and related engineering systems. Simulation languages and animation are covered. Statistical inference is used to draw conclusions and to identify the best system.

**Prerequisites:** MIME 2650 with a minimum grade of D- and MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-

**Term Offered:** Spring

**MIME 4180 Legal Aspects of Engineering**

[3 credit hours]

This course offers an introduction to legal topics for engineers. Topics include: contracts, negligence, products liability, patents and copyright, employment law, criminal law, environmental law, and business law.

**Term Offered:** Spring, Fall

**MIME 4200 Senior Design Projects II**

[3 credit hours]

Students continue to work in teams using knowledge gained in earlier courses to solve real design, manufacturing and operational problems relevant to industry. Oral and written communications with participating companies as well as teamwork are stressed. Other topics include project planning and scheduling, patents, product liability, safety, ethics and design for manufacturing.

**Prerequisites:** (MIME 3200 with a minimum grade of D- and MIME 3320 (may be taken concurrently) with a minimum grade of D- and MIME 3440 (may be taken concurrently) with a minimum grade of D-)

**Term Offered:** Fall

**MIME 4220 Assembly And Joining Processes**

[3 credit hours]

This course is comprised of two parts: joining processes and assembly systems. Commonly used joining methods, such as welding, mechanical fastening and adhesion are discussed. General principles of assembly are presented with extensive use of automobile assembly as an example.

**Term Offered:** Spring

**MIME 4230 Dynamics Of Human Movement**

[3 credit hours]

The goal of this course is for students to be able to describe motions of the human body. Three-dimensional analysis and measurements of human body movements including kinematics, kinetics and energetics of human gait, anthropometry and application to bioengineering and orthopedics will be presented. Euler angles and the screw axis method will be used to describe three-dimensional motions.

**Prerequisites:** MIME 2300 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4240 Experimental Methods in Orthopedic Biomechanics**

[3 credit hours]

Experimental techniques used in orthopedics and in the study of the musculoskeletal system including mechanical testing, experimental and analytical methods for stress analysis, strain gauges, methods used in human motion analysis to include motion capture, force plates and EMG.

**Prerequisites:** MIME 1650 with a minimum grade of D- and CIVE 1160 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4280 Cad-Finite Element Methods**

[3 credit hours]

An introduction to the basic concepts of the finite element method. Topics include engineering analysis of continuous systems, numerical solutions of boundary value problems, method of weighted residuals and the principle of minimum potential energy, applications of commercially available finite element programs.

**Prerequisites:** MIME 3320 with a minimum grade of D-

**Term Offered:** Summer, Fall

**MIME 4300 Advanced Mechanics Of Materials**

[3 credit hours]

Theory of elasticity, plane stress and plane problems, yield criteria and failure theories, bending of beams, energy methods, curved flexural members, unsymmetric bending, torsion, shear center and axisymmetrically loaded members.

**Prerequisites:** CIVE 1160 with a minimum grade of D- and MATH 2860 with a minimum grade of D- or MATH 3860 with a minimum grade of D- or MATH 3820 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4310 Mechanics Of Composite Materials**

[3 credit hours]

Review of elasticity of anisotropic solids, determination of mechanical properties of fiber-reinforced lamina, analysis and performance of laminated composites.

**Prerequisites:** (CIVE 1160 with a minimum grade of D- and MIME 1650 with a minimum grade of D-)

**Term Offered:** Spring

**MIME 4320 Fatigue Of Materials & Structures**

[3 credit hours]

Fatigue design methods; fatigue fracture mechanisms; cyclic deformation behavior and material cyclic properties; stress-based, and fracture mechanics-based methodologies to fatigue life prediction of smooth and notched members subjected to constant or variable amplitude loadings.

**Prerequisites:** CIVE 1160 with a minimum grade of D-

**Term Offered:** Spring

**MIME 4350 Advanced Ceramics**

[3 credit hours]

This course provides greater knowledge on the atomic bonding, crystal structure, crystal imperfections, phases and interfaces, microstructures, phase diagrams, phase transformation, transport and diffusion, metal deformation, fracture of materials, deterioration of materials, electronic and physical properties of ceramics.

**Prerequisites:** MIME 1650 with a minimum grade of C- and PHYS 2130 with a minimum grade of C- and PHYS 2135 with a minimum grade of C-

**Term Offered:** Spring, Fall

**MIME 4370 Advanced Materials for Automotive Structures**

[3 credit hours]

An in#depth study of the broad range of engineering materials used in the construction of motor vehicles. Inter#relations between materials microstructure, components manufacturing process and components service behavior.

**Prerequisites:** (MIME 1650 with a minimum grade of C- and PHYS 2130 with a minimum grade of C- and PHYS 2135 with a minimum grade of C-)

**Term Offered:** Spring, Fall

**MIME 4380 Engineering Polymers and Rubbers**

[3 credit hours]

Polymers and rubber are introduced through lecture and lab components at three levels- 1) synthesis and characterization, 2) thermal, molecular and mechanical properties, and 3) design considerations for engineering applications.

**Prerequisites:** (MIME 1650 with a minimum grade of C- and PHYS 2130 with a minimum grade of C- and PHYS 2135 with a minimum grade of C-)

**Term Offered:** Spring, Fall

**MIME 4390 Failure Analysis of Materials**

[3 credit hours]

The failure analysis is a procedure to determine the physical cause of the failure of an element, component or industrial equipment. The course will be focused on material related and will present an introduction to the principles of failure analysis and the fundamental aspects to conduct a failure analysis investigation. A key component of the course is the discussion of real cases of failures (case studies), i.e. failures in mining machinery, chemical processing equipment, energy production, systems, aircraft and petrochemical industry components. This course provides the connection between mechanisms that are responsible for material failures and will address the characterization techniques used in failure analysis. Fundamental failure mechanisms in various materials applications including fracture of metals and alloys, failure in electronic devices, and environmental factor induced failures will be covered. Each categorized phenomenon will be approached by historical events to reveal the application and connection between the mechanism and the incidents.

**Prerequisites:** (MIME 1650 with a minimum grade of C- and PHYS 2130 with a minimum grade of C- and PHYS 2135 with a minimum grade of C-)

**Term Offered:** Spring, Fall

**MIME 4410 Alternative Energy**

[3 credit hours]

This course focuses on the technical aspects of sustainable energy technologies, such as wind, solar, biomass, ocean waves/tides, geothermal, and hydropower; it also covers issues and applications related to storage, transportation, distribution, industrial usage, and buildings. The course investigates the progress, challenges, and opportunities of each technology to be both technically feasible and economically viable.

**MIME 4430 Automotive Control Systems**

[3 credit hours]

This course covers the major aspects of automotive control, including engine, driveline, and complete vehicle control. This includes applications such as fuel and ignition control, ABS systems, gear-shifting, and vehicle velocity estimation.

**Prerequisites:** MIME 3380 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4440 Mechatronics**

[3 credit hours]

This course will give students hands-on experience with mechatronic systems and components. The laboratory will be used to demonstrate several mechatronics systems including inverted pendulums, suites of sensors and motors, and other more complex systems. A major part of the course will be a semester-long project where the students conceive, design, and build a mechatronic device.

**Prerequisites:** MIME 3380 with a minimum grade of D-

**Term Offered:** Spring, Fall



**MIME 4450 Automation Design**

[3 credit hours]

This course will introduce the range of common components used in automation, including actuators, sensors, motors, linear guides, energy chain, industrial robots and light curtains. Students will practice (with feedback) walking through the design process in specifying, sizing, laying out and integrating these components.

**Prerequisites:** MIME 1100 with a minimum grade of D- and MIME 2300 with a minimum grade of D- and CIVE 1160 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4460 MATLAB for Engineers**

[3 credit hours]

This course will review the basics of using MATLAB, identify best-practices applicable to MATLAB and other programming languages, and provide examples of more-advanced functionality such as image processing, Simulink control of mechatronic systems, numerically solving differential equations, GPU computation, and optimization. Programming experience would be helpful, but this would also be a good opportunity to rapidly grow programming skills with an easy-to-learn language.

**Prerequisites:** MATH 2860 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4510 Turbomachinery**

[3 credit hours]

Theory of energy transfer between fluid and rotor in turbomachines. Design of turbomachine components. Applications to pumps, compressors and turbines.

**Prerequisites:** (MIME 3410 with a minimum grade of D- and MIME 3430 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall

**MIME 4520 Heating, Ventilating And Air Conditioning**

[3 credit hours]

Control of the thermal environment within enclosed spaces including psychrometric properties of air heating and cooling, loads and factors affecting human comfort. Analysis of basic heating and refrigeration systems, heat pumps, heaters, utilization of solar energy, humidifiers, energy conservation and controls for systems.

**Prerequisites:** MIME 3410 with a minimum grade of D-

**Term Offered:** Fall

**MIME 4530 Internal Combustion Engines**

[3 credit hours]

Study of Carnot, Otto, Diesel and Brayton Cycles, performance characteristics, combustion engines and construction details of internal combustion engines. Analysis of problems associated with carburetion, fuel injection, combustion, cooling, supercharging, emissions and emission control.

**Prerequisites:** MIME 3410 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4540 Jet Propulsion**

[3 credit hours]

Mechanics and thermodynamics of jet propulsion. Fundamentals of high-speed flow. Analysis of gas turbine engine components: diffuser, compressor, turbine and nozzle. Investigation of characteristics of ramjets, turbojets, turbofans and turboprops. Introduction to solid and liquid rockets.

**Prerequisites:** MIME 3410 with a minimum grade of D-

**Term Offered:** Summer, Fall

**MIME 4550 Aerodynamics**

[3 credit hours]

Fundamentals of aerodynamics, potential flow theory, aerodynamic forces and moments, introduction to numerical analysis, application to internal flows, theory of lift for infinite and finite wings, induced drag.

**Prerequisites:** MIME 3430 with a minimum grade of D-

**Term Offered:** Spring, Fall

**MIME 4560 Gas Dynamics**

[3 credit hours]

Analysis of compressible flow phenomena including shock and detonation waves. Internal flow with friction and heat addition. Analysis and application to supersonic airfoil theory, inlet nacelles, nozzles to generate supersonic thrust and jet engine combustors.

**Prerequisites:** MIME 3430 with a minimum grade of D-

**Term Offered:** Spring

**MIME 4690 Reliability**

[3 credit hours]

Reliability of components and multicomponent systems. Static and dynamic reliability models for both independent and dependent failures. Effects of redundancy. Reliability testing consideration.

**Term Offered:** Spring, Summer, Fall

**MIME 4820 Sustainability Analysis and Design**

[3 credit hours]

The course is intended to introduce students to sustainability analysis and design in manufacturing and service settings as related to mechanical and industrial engineering. It will cover solid waste minimization for manufacturers, life cycle analysis, and environmentally conscious design.

**Term Offered:** Spring, Fall

**MIME 4830 Additive Manufacturing**

[3 credit hours]

Additive manufacturing (AM) is a method of manufacturing that has been growing rapidly. In this course the students will learn about various AM technologies. They will also work with the required design software packages to create 3D models and 3D-print objects from the designed models.

**Prerequisites:** MIME 2650 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**MIME 4920 Special Projects**

[1-3 credit hours]

A special project by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for students interested in mechanical, industrial or manufacturing engineering nearing completion of their undergraduate degree. Instructor will specify scope of project to correspond to credit hours.

**Term Offered:** Spring, Summer, Fall

**MIME 4980 Special Topics**

[1-3 credit hours]

A special topic at the undergraduate level in Mechanical, Industrial or Manufacturing Engineering to be offered as a course during a term by a faculty member. This is intended for students nearing graduation. Credits will correspond to regular class meeting of one lecture hour per week per credit hour.

**Term Offered:** Spring, Summer, Fall

## Medical Technology (MEDT)

### MEDT 2010 Introduction to Medical Laboratory Techniques

[2 credit hours]

This course serves as an introduction to the profession of laboratory medicine. Topics include: organizational structure of hospitals and laboratories; medical ethics; related medical terminology; quality assurance; laboratory safety; laboratory calculations and knowledge of the basic principles of laboratory testing.

**Prerequisites:** BIOL 2170 with a minimum grade of C and BIOL 2180 with a minimum grade of C and CHEM 1240 with a minimum grade of C and CHEM 1290 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

### MEDT 4020 Clinical Hematology I

[4 credit hours]

Introduction to the theory, practical application, technical performance and evaluation of hematological procedures. Correlation of clinical laboratory data with the diagnosis and treatment of blood cell diseases.

**Term Offered:** Spring

### MEDT 4025 Clinical Hematology II

[3 credit hours]

Introduction to the theory, practical application, technical performance and evaluation of neoplastic hematologic disorders, morphologic analysis of body fluids, hemostasis, and advanced hematology procedures including bone marrow and flow cytometry, chromosome analysis, and quality assessment. Correlation of clinical laboratory data with the diagnosis and treatment of blood cell diseases.

**Prerequisites:** MEDT 4020 with a minimum grade of C

**Term Offered:** Fall

### MEDT 4030 Urine Analysis and Body Fluids

[2 credit hours]

Normal and pathological physiologic function of renal, synovial, seminal, cerebrospinal, serous and amniotic fluids.

**Term Offered:** Spring

### MEDT 4040 Clinical Chemistry

[5 credit hours]

Analysis of chemical constituents of blood and body fluids in normal and abnormal physiology, including assay performance, test interpretation, quality control and interpretation, and methodological principles.

**Term Offered:** Spring, Summer, Fall

### MEDT 4050 Clinical Microbiology I

[4 credit hours]

Study of bacteria that are pathogenic or potentially pathogenic to humans with emphasis on principles of testing methodologies, techniques for isolation, identification, and clinical relevance by body site.

**Prerequisites:** BIOL 4030 with a minimum grade of C and BIOL 4040 with a minimum grade of C

**Term Offered:** Spring, Summer

### MEDT 4060 Clinical Immunology

[3 credit hours]

Theory and practical applications of immunodiagnostics and immunopathology, and of molecular diagnostics. Principles of methodologies in relationship to clinical diagnosis and correlation with human disease are stressed.

**Prerequisites:** BIOL 4050 with a minimum grade of C

**Term Offered:** Summer, Fall

### MEDT 4070 Clinical Parasitology

[2 credit hours]

Lecture/laboratory sessions cover the major groups of medically important parasites, including amoebae, helminthes and blood protozoa. Morphologic identification of pathogenic organisms and the ability to distinguish from non-pathogenic genera.

**Term Offered:** Fall

### MEDT 4080 Clinical Immunohematology

[4 credit hours]

Introduces the student to the basic genetics of red cell antigens. Students will also study the significance of the blood cell antigens and antibodies, uses of specific blood components for transfusion, component processing, donor requirements and various transfusion associated disease states. Laboratory instruction emphasizes ABO and Rh typing, antibody detection and identification, and cross matching procedures.

**Term Offered:** Fall

### MEDT 4090 Clinical Mycology

[2 credit hours]

Study of the medically important fungi including yeast, dermatophytes and opportunistic and dimorphic fungi, including morphologic identification of pathogenic organisms and saprophytes which are commonly encountered in clinical specimens.

**Term Offered:** Spring, Fall

### MEDT 4100 Clinical Virology

[2 credit hours]

Discussion of the epidemiology and pathogenesis of viruses implicated in human disease. Emphasis on diagnostic tools used in the clinical laboratory to isolate, culture, and identify these organisms.

**Term Offered:** Spring, Summer, Fall

### MEDT 4120 Clinical Microbiology II

[3 credit hours]

Discussion of specific concentrations of clinical microbiology that includes intracellular bacteria, mycology, parasitology, and virology. Clinical manifestations and organism identification will be discussed. In addition, review of laboratory techniques used to culture and identify microorganisms isolated from common body sites.

**Prerequisites:** MEDT 4050 with a minimum grade of C

**Term Offered:** Fall

### MEDT 4500 Clinical Research and Clinical Correlations

[3 credit hours]

Correlate clinical, technical and analytical proficiencies that comprise medical laboratory science practice. Analyze and interpret case studies through selection, application, and interpretation of clinical laboratory protocols.

**Term Offered:** Spring, Fall

### MEDT 4950 Clinical Externship: Management

[1 credit hour]

Clinical practicum experience in a Clinical Sciences Laboratory setting focused on management of laboratory services, including role and responsibilities of supervision, laboratory scheduling/workflow, and financial management.

**Term Offered:** Spring, Fall

**MEDT 4951 Clinical Externship: Microbiology**

[4 credit hours]

Clinical laboratory experience in an affiliated Clinical Sciences Laboratory setting focused on microbiological culture and assay techniques and methods. May also include an immunology system.

**Prerequisites:** MEDT 4050 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**MEDT 4952 Clinical Externship: Chemistry**

[2 credit hours]

Clinical laboratory experience in an affiliated Clinical Sciences Laboratory focused on clinical chemistry procedures, techniques, principles, and relationship to disease states. May also include an immunology practicum.

**Prerequisites:** MEDT 4040 with a minimum grade of C**Term Offered:** Spring**MEDT 4953 Clinical Externship: Hematology**

[2 credit hours]

Clinical laboratory experience in an affiliated Clinical Sciences Laboratory focused on analytical hematological methodologies, correlation of tests with disease state, hematopoiesis and hemostasis, quality control and instrumentation and manual methods.

**Prerequisites:** MEDT 4025 with a minimum grade of C**Term Offered:** Spring**MEDT 4954 Clinical Externship: Immunohematology**

[3 credit hours]

Clinical laboratory experience in an affiliated Clinical Sciences Laboratory focused on methodologies and problem-solving in immunohematology, including crossmatching, antibody identification, blood component preparation, and transfusion and quality assurance.

**Prerequisites:** MEDT 4020 with a minimum grade of C**Term Offered:** Spring, Summer, Fall

## Medicinal-Biological Chemistry (MBC)

**MBC 2960 Undergraduate Research**

[1-6 credit hours]

Development and pursuit of undergraduate research in Medicinal and Biological Chemistry.

**Term Offered:** Spring, Summer, Fall**MBC 3100 Ethical Practice in Research**

[1 credit hour]

Consideration of the scientific, ethical, and legal obligations expected in the conduct of academic and industrial pharmaceutical research.

**Term Offered:** Spring**MBC 3310 Medicinal Chemistry I: Drug Action And Design**

[2 credit hours]

An introductory course presenting the basic chemical principles governing the behavior of drugs and the design of new therapeutics.

**Prerequisites:** CHEM 2420 with a minimum grade of D-**Term Offered:** Fall**MBC 3320 Medicinal Chemistry II: Drug Design and Drug Action**

[3 credit hours]

A course presenting application of basic medicinal chemistry principles in drug design and drug action, which are key to drug discovery and drug development.

**Prerequisites:** (MBC 3310 with a minimum grade of D- and MBC 3550 with a minimum grade of D-)**Term Offered:** Spring**MBC 3330 Techniques in Pharmaceutical and Medicinal Chemistry**

[2 credit hours]

A consideration and application of analytic and chemistry techniques useful for pharmaceutical and medicinal chemistry students.

**Term Offered:** Fall**MBC 3340 Techniques in Pharmaceutical and Medicinal Chemistry Laboratory**

[1 credit hour]

A laboratory course that fosters development of analytical and chemistry techniques useful for pharmaceutical and medicinal chemistry students.

**Corequisites:** MBC 3330**Term Offered:** Fall**MBC 3550 Physiological Chemistry I: Structure And Function Of Biological Macromolecules**

[3 credit hours]

An examination of the levels of structure of proteins, nucleic acids, other biomolecules and biomolecular assemblies.

**Term Offered:** Fall**MBC 3552 Physiological Chemistry II Cellular Metabolism and Homeostasis**

[2 credit hours]

An examination of the chemistry and regulation of metabolic processes in cells, interacting cells and tissues.

**Prerequisites:** MBC 3550 with a minimum grade of D- or MBC 5550 with a minimum grade of D-**Term Offered:** Spring**MBC 3560 Physiological Chemistry II: Chemical Regulation Of Cells And Organisms**

[3 credit hours]

An examination of the chemistry and regulation of metabolic processes in cells, interacting cells and tissues.

**Prerequisites:** MBC 3550 with a minimum grade of D-**Term Offered:** Spring**MBC 3860 Microbiology for Pharmaceutical Professionals**

[2 credit hours]

This is a lecture and laboratory course with emphasis on microorganisms that cause disease. Special attention will be paid to structures and mechanisms present in microorganisms that can be exploited to inhibit the growth and survival of these organisms in a human host.

**Prerequisites:** MBC 3550 with a minimum grade of D- or MBC 5550 with a minimum grade of D-**Term Offered:** Spring**MBC 3880 Medicinal And Biological Chemistry Laboratory**

[3 credit hours]

Laboratory and lecture teaching fundamental laboratory skills in synthetic medicinal chemistry.

**Term Offered:** Spring, Fall

**MBC 4380 Medicinal Plants**

[3 credit hours]

A lecture/field course emphasizing medicinal and poisonous plants of this locale.

**Term Offered:** Summer, Fall**MBC 4400 Cannabis Science: Plants and Products**

[3 credit hours]

CS Plants & Products considers in-depth the growth of *Cannabis sativa* and its subspecies as well as the production and physical properties of both chemical and consumer products derived from them. Examining the factors, procedures, and techniques that make for optimal medicinal and recreational outcomes, the course is designed for learners with diverse backgrounds, interests, and intents

**Term Offered:** Spring, Summer, Fall**MBC 4710 Targeted Drug Design**

[3 credit hours]

A survey of novel macromolecular targeting approaches to drug design in important human disorders. The course has a seminar/discussion/student presentation format.

**Prerequisites:** MBC 3320 with a minimum grade of D-**Term Offered:** Summer, Fall**MBC 4780 Internship in Medicinal Chemistry**

[3-12 credit hours]

An experiential course in which students acquire practical knowledge through hands-on experience in an area of medicinal and biological chemistry by working in an academic, private or government laboratory or professional site.

**Prerequisites:** MBC 3320 with a minimum grade of D- and MBC 3560 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**MBC 4850 Advanced Immunology And Tissue Culture Laboratory**

[1-10 credit hours]

Research experience in medicinally related immunology including literature investigations, tissue culture, cell sorting and sterile biotechniques and culminating with a seminar and written report.

**Term Offered:** Spring, Summer, Fall**MBC 4870 Biomedical Chemistry Laboratory**

[1-10 credit hours]

Research experience in biomedical chemistry including literature investigations and chemical synthesis of medicinally important compounds and culminating with a seminar and written report.

**Term Offered:** Spring, Summer, Fall**MBC 4900 Honors Seminar In Medicinal And Biological Chemistry**

[1-3 credit hours]

An examination of a specific question in the context of the primary literature in medicinal or biological chemistry.

**Term Offered:** Spring, Summer, Fall**MBC 4910 Problems In Biomedical Chemistry**

[1-3 credit hours]

Selected study of topics in biomedical chemistry. New chemical and biochemical strategies in drug design are examined in detail.

**Term Offered:** Spring, Summer, Fall**MBC 4950 Research In Medicinal Chemistry**

[3-8 credit hours]

Selected research and study in medicinal chemistry.

**Term Offered:** Spring, Summer, Fall**MBC 4960 Honors Thesis In Medicinal And Biological Chemistry**

[1-5 credit hours]

An examination of a specific research question in medicinal or biological chemistry that can be answered through experimental work.

**Term Offered:** Spring, Summer, Fall**MBC 4980 Special Topics In Drug Design**

[1-4 credit hours]

A detailed examination of new chemical and biochemical strategies in drug design.

**Prerequisites:** (MBC 3320 with a minimum grade of D- and MBC 3560 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall

## Middle East Studies (MES)

**MES 2400 Introduction to the Contemporary Cultures of the Middle East through Movies and Arts**

[3 credit hours]

The objective of this course is to introduce students to the contemporary cultures of the Middle East and North Africa in both theoretical terms and details of daily life. The course will provide a general overview of the geography and demography of the Middle East, and will engage in a discussion of the different aspects of the life of the people in the different countries using movies. The course will focus on the different constituents of the Middle Eastern cultures as they are reflected in movies, music, artwork, paintings, video clips, literary works and other creative expressions.

**Term Offered:** Spring, Fall**MES 3200 The Contemporary Middle East a Historical and Modern In-Depth Overview**

[3 credit hours]

The objective of this course is to introduce students to the contemporary Middle East, and provide an in-depth overview of its historical context and modern era. The course introduces you to the geography and demography of the Middle East and will engage in a discussion of the different aspects of the life of the people in the different countries. The course will focus on the languages, religious identity and the impact of colonialism/imperialism.

**Term Offered:** Spring, Fall**MES 3800 The Governments and Legal Systems of the Contemporary Middle East**

[3 credit hours]

The objective of this course is to introduce students to the contemporary governments and legal systems of the Middle East and North Africa. The course will provide a comprehensive view of the domestic and foreign policies of the region by taking a comparative and thematic approach addressing the political, legal, economic and social structures. The course will also address the aftermath of the so called Arab Spring, the ongoing violence and war in different countries in the region.

**Term Offered:** Spring, Fall

**MES 4200 Current Issues in the Middle East**

[3 credit hours]

The objective of this course is to introduce students to the current issues in the Middle East and North Africa. The course will provide an overview of the different issues facing the Middle East and its people. In addition, the class will provide daily follow up on current issues in the region especially those related to the interests to the students in the class.

**Term Offered:** Spring, Fall

## Military Science and Leadership (MSL)

**MSL 1010 Introduction to the Army**

[1 credit hour]

Introduces students to issues and competencies that are central to a commissioned officer's responsibilities. Establishes a framework for understanding leadership, officership, Army values, physical fitness and time management. Leadership Lab required.

**Term Offered:** Fall**MSL 1020 Foundations of Leadership**

[1 credit hour]

Builds upon the basic leadership fundamentals introduced in MSL 1010 and includes lessons in goal setting, problem solving, critical thinking, values clarification, leadership and followership, and introduces techniques for improving listening and speaking skills. Leadership Lab required.

**Prerequisites:** MSL 1010 with a minimum grade of D-**Term Offered:** Spring**MSL 1030 Introduction To Physical Fitness**

[1 credit hour]

Students participate in the U.S. Army's physical fitness program three days each week. The sessions include running, strength exercises, agility exercises and organized sports.

**Term Offered:** Spring, Fall**MSL 1040 Physical Fitness**

[1 credit hour]

Students participate in the U.S. Army's physical fitness program three days each week. The sessions build upon the fitness level previously achieved.

**Term Offered:** Spring**MSL 2010 Leadership and Ethics**

[2 credit hours]

Identifies successful leadership characteristics through observation of others and self, using experiential learning exercises designed to teach students how to communicate, how to build teams and how to plan and organize effectively. Leadership Lab required.

**Term Offered:** Summer, Fall**MSL 2020 Army Doctrine and Decision Making**

[2 credit hours]

Students examine how to build successful teams, including methods for influencing action and achieving goals, effective communication techniques, values and ethics, problem solving and physical fitness. Leadership Lab required.

**Term Offered:** Spring, Summer**MSL 2030 Physical Training I**

[1 credit hour]

Students participate in physical training three times each week. Students learn how to conduct and lead a military physical training session.

**Term Offered:** Fall**MSL 2040 Physical Training II**

[1 credit hour]

Students participate in physical training three times each week. The sessions build upon the training level previously achieved.

**Term Offered:** Spring**MSL 2200 Leader's Training Course**

[3 credit hours]

This training is a six week course in leadership management and interpersonal skills taught at Ft. Knox, Kentucky. The training compresses the Military Science 1000 and 2000-level courses. Camp graduates are eligible to enter the Army ROTC Advanced course.

**Term Offered:** Spring, Fall**MSL 2990 Independent Study In Military Science**

[1-3 credit hours]

Students will study an appropriate subject mutually agreed upon between the student and instructor.

**Term Offered:** Spring, Fall**MSL 3010 Training Management and the Warfighting Functions**

[3 credit hours]

Students assess leadership abilities, plan and conduct individual and small unit training, and apply basic tactical principles and reasoning skills. Leadership Lab required

**Term Offered:** Fall**MSL 3020 Applied Leadership in Small Unit OPS**

[3 credit hours]

Examines the role that communications, values and ethics play in effective leadership. Topics include ethical decision making, consideration of others and Army Leadership Doctrine. Leadership Lab required.

**Term Offered:** Spring**MSL 3030 Physical Fitness Planning I**

[1 credit hour]

Students design and implement weekly physical training sessions. In addition, they learn how to supervise a group training session.

**Term Offered:** Fall**MSL 3040 Physical Fitness Planning II**

[1 credit hour]

Students design and implement weekly physical training sessions. The sessions build upon the skill level previously achieved.

**Term Offered:** Spring**MSL 3600 Airborne Operations**

[1 credit hour]

Three weeks of intensive field training conducted at Ft. Benning, Georgia. Combines the study of military airborne operations, strenuous physical conditioning, military parachute techniques and culminates with five parachute jumps from military aircraft.

**Term Offered:** Spring, Fall

**MSL 3700 Cadet Troop Leadership Training (ctlt)**

[2 credit hours]

Three weeks of practical experience serving as a platoon leader with U.S. Army soldiers. This training puts the student in leadership situations and allows them to practice and hone their leadership skills in a real world environment.

**Term Offered:** Spring, Summer, Fall**MSL 3800 Air Assault Operations**

[1 credit hour]

Two weeks of intensive field training conducted at an Army installation. Combines the study of Military Heliborne Operations, strenuous physical conditioning and advanced rappelling. Culminates with 4 rappels from a military helicopter.

**Term Offered:** Spring, Fall**MSL 3850 Leaders Development And Assessment Course**

[3 credit hours]

This is an intense five-week course conducted between the junior and senior year. This concentrated practical training provides an opportunity to evaluate the student's application of academic knowledge over a myriad of leadership situations and tasks.

**Term Offered:** Spring, Summer, Fall**MSL 4010 The Army Officer**

[3 credit hours]

Develops student proficiency in planning and executing complex operations, functioning as a member of a staff and mentoring subordinates. Students explore the Army's training management system, methods of effective staff collaboration and developmental counseling techniques.

**Prerequisites:** MSL 3010 with a minimum grade of D- and MSL 3020 with a minimum grade of D-

**Term Offered:** Summer, Fall**MSL 4020 Company Grade Leadership**

[3 credit hours]

Course includes a case study analysis of military law and practical exercises on establishing an ethical command climate. Students complete a semester-long Senior Leadership Project that requires them to plan, organize, analyze and demonstrate their leadership skills.

**Prerequisites:** MSL 3010 with a minimum grade of D- and MSL 3020 with a minimum grade of D-

**Term Offered:** Spring, Summer**MSL 4030 Advanced Pt Planning I**

[1 credit hour]

Students design and implement a physical training program for the entire semester. They supervise and critique implementation of the MS 3030 students' weekly training plans.

**Term Offered:** Fall**MSL 4040 Advanced Pt Planning II**

[1 credit hour]

Students design and implement a physical training program for the entire semester. The sessions build upon the skill level previously achieved.

**Term Offered:** Spring**MSL 4800 United States Military History**

[3 credit hours]

An in-depth study of the battle and its place in American history, examining combat leadership and the decision making process at both the operational and tactical level.

**Term Offered:** Spring, Fall**MSL 4990 Independent Study in US Military History**

[1-3 credit hours]

Students will study an appropriate subject mutually agreed upon between the student and instructor.

**Term Offered:** Spring, Summer, Fall

## Music (MUS)

**MUS 1000 Performance Laboratory**

[0 credit hours]

Required of music majors and minors. Weekly departmental student recitals. Offered as P/NC only.

**Term Offered:** Spring, Fall**MUS 1010 Concert Attendance**

[0 credit hours]

Required of music majors and minors. Attend 8 department concerts and 2 non-department concerts. Offered as P/NC only.

**Term Offered:** Spring, Fall**MUS 1100 Introduction To Music Technology**

[1 credit hour]

This course introduces students to music applications for sound recording, music notation, and virtual sound design. Students also discover basic tools of the trade such as microphones, speaker monitors, portable recording devices, and current trends within social media relating to self-promotion in music.

**Term Offered:** Spring, Fall**MUS 1200 Group Guitar For The Non-Major**

[2 credit hours]

Basic guitar skills: note reading, chords, accompaniment, variety of musical styles. Includes rhythmic and aural training, theory and ensemble playing. Each student must provide their own guitar.

**Term Offered:** Spring, Fall**MUS 1250 Group Piano For The Non-Major I**

[2 credit hours]

Classical and popular literature in a variety of styles and period will be explored. May be repeated for credit. Students may take P/NC.

**Term Offered:** Spring, Fall**MUS 1280 Group Voice For The Non-Major**

[2 credit hours]

Develops basic vocal techniques with attention to the principles of voice production, vowel formation, breathing, articulation and flexibility. May be repeated for credit. Open to all students regardless of major. Students may take P/NC.

**Term Offered:** Spring, Summer, Fall**MUS 1500 String Class**

[2 credit hours]

Principles, concepts, difficulties typical of stringed instruments and pedagogy addressed through performance.

**Corequisites:** MED 1000**Term Offered:** Spring, Fall

**MUS 1510 Percussion Class**

[2 credit hours]

Principles, concepts, difficulties typical of percussion instruments and pedagogy addressed through performance.

**Corequisites:** MED 1000**Term Offered:** Spring, Fall**MUS 1530 Brass Class**

[2 credit hours]

Principles, concepts, difficulties typical of brass instruments and pedagogy addressed through performance.

**Corequisites:** MED 1000**Term Offered:** Spring, Fall**MUS 1550 Woodwinds Class**

[2 credit hours]

Principles, concepts, difficulties typical of woodwind instruments and pedagogy addressed through performance.

**Corequisites:** MED 1000**Term Offered:** Spring, Fall**MUS 1560 Instrumental Class**

[3 credit hours]

An overview of principles, concepts and difficulties typical of string, brass, woodwind and percussion instruments.

**Corequisites:** MED 1000**Term Offered:** Fall**MUS 1570 Piano Class For Music Majors I**

[1 credit hour]

Progressive sequence of keyboard skills courses stressing technique, repertoire, sight reading, harmonization, improvisation and transposition. Includes keyboard technology.

**Term Offered:** Spring, Summer, Fall**MUS 1580 Piano Class For Music Majors II**

[1 credit hour]

Provides instruction in keyboard skills required for the various degree programs. Progressive sequence of courses stressing technique, repertoire, sight reading, harmonization, transposition. Includes keyboard technology.

**Prerequisites:** MUS 1570 with a minimum grade of C**Term Offered:** Spring**MUS 1590 Jazz Piano Class**

[1 credit hour]

Provides instruction in jazz keyboard skills, including jazz techniques, voicings, repertoire, sight reading and harmonization.

**Prerequisites:** MUS 1570 with a minimum grade of C**Term Offered:** Spring**MUS 1610 Music Theory And Ear Training I**

[4 credit hours]

Dictation, ear training and sight singing skills in rhythm, melody and harmony. Basic theoretical skills include key signatures, clefs, notation of scales, chords and rhythm patterns. Includes computer technology.

**Term Offered:** Fall**MUS 1620 Music Theory And Ear Training II**

[4 credit hours]

Continuation of 1610. Emphasis on melody dictation and sight singing. Additional skill development in harmonizations, figured bass and study of basic forms. Includes computer technology.

**Prerequisites:** MUS 1610 with a minimum grade of C**Term Offered:** Spring**MUS 1700 Jazz Fundamentals**

[2 credit hours]

Introduction to jazz performance practices, nomenclature, chord and music notation, analysis and improvisation.

**Prerequisites:** MUS 1610 with a minimum grade of C**Term Offered:** Spring**MUS 1800 Applied Music**

[1-4 credit hours]

Private music lessons for first-year music majors and minors. Must be taken twice, and a grade of B or better is required in each semester.

**Term Offered:** Spring, Summer, Fall**MUS 1810 Applied Music For The Non-Major**

[1-2 credit hours]

Private music lessons for provisional and non-music majors. May be repeated for credit. Limited by instructor availability.

**Term Offered:** Spring, Summer, Fall**MUS 2200 Music Theory For The Non-Major**

[3 credit hours]

Introduction to the fundamentals of music, including notation, key, time signatures, rhythm, intervals, triads and chords, dominant 7th chords, cadences, and introduction to elementary aural skills. Students may take P/NC. Not for major credit.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**MUS 2210 Introduction To Music**

[3 credit hours]

The study of vocal and instrumental music from the standard repertoire primarily through listening. Previous music training is not required, but regular listening is part of the course. Not for major credit. Students may take P/NC.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**MUS 2220 History Of Jazz**

[3 credit hours]

A study of the development of jazz styles, including listening skills and historical perspectives. Because the major innovations and styles of jazz are a result of contributions from African Americans and other ethnicities, the course includes a study of how different time periods influenced the development of jazz and our culture. Students may take P/NC.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural US Diversity, OT36 Arts and Humanities

**MUS 2240 History Of Rock And Roll**

[3 credit hours]

A study of the styles, techniques and history of rock and roll. Students may take P/NC. Not for major credit.

**Term Offered:** Summer, Fall

Core Arts &amp; Humanities

**MUS 2250 Musical Diversity In The United States**

[3 credit hours]

The cultures of various ethnic groups (Native Americans, African-American, Mennonite, Moravian, Creole and others) are examined, especially as they relate to the development of folk, popular and art music styles in the United States. This course includes listening. Students may take P/NC. Not for major credit.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural US Diversity, OT36 Arts and Humanities

**MUS 2260 Electronic Music**

[2 credit hours]

Both lecture sessions and creative lab assignments. Students start with a basic introduction to the physics of music and sound, professional applications for sound design, MIDI, music-recording, and current personal music-publishing within the internet at large.

**Term Offered:** Spring, Fall**MUS 2270 Recording Techniques**

[2 credit hours]

Both lecture sessions and creative lab assignments. Students examine the physical aspects of sound and hearing. Recording transducers from microphones to monitors, mixing consoles, MIDI and music technology in the contemporary recording studio are all examined. Current personal music-publishing within the internet at large are presented.

**Term Offered:** Spring, Fall**MUS 2280 Survey Of The Music Business**

[3 credit hours]

An indepth study of the music business nationally and internationally. Music making, publishing, copyright law, management, broadcast in radio and film, and business affairs are examined.

**Term Offered:** Summer, Fall**MUS 2410 Music History And Literature I: World Music And Jazz**

[3 credit hours]

A study of music from various world cultures and jazz. A special emphasis is placed on developing listening skills.

**Term Offered:** Spring**MUS 2420 Cultures And Music Of Non-Western Styles**

[3 credit hours]

An introduction to world music. The course provides overviews of the geography, the social and political environments, the religious practices and spiritual beliefs, and the cultural heritages of people and countries, such as Central Asia, South Asia, Africa, Caribbean, Korea, Japan, Latin America, Native American, Jazz in America, and American Pop, and American Country. Student may take P/NC

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

**MUS 2520 Intro to Voice and Diction 1**

[2 credit hours]

Intro to Voice and Diction I: Voice for Freshman and Vocal Diction - a combined course designed to train the singer in how to function in voice lessons through skill building sets such as; develop a process to learn repertoire, learn and understand International Phonetic Alphabet sounds and demonstrate that knowledge through practical application to vocal technique and repertoire. This creates contextual learning, while building a foundation of experiential knowledge for future training.

**Corequisites:** MUS 1800**Term Offered:** Fall**MUS 2530 Diction For Singers I**

[1 credit hour]

International Phonetic Alphabet mastery; pronunciation of English, German, Latin, Italian and French in relation to art song and aria form, emphasis on the sound of the language. Meets two hours per week.

**Term Offered:** Fall**MUS 2540 Diction For Singers II**

[1 credit hour]

Continuation of MUS 2530. IPA; pronunciation of German and English in relation to art song and aria form; emphasis on the sound of the language. Meets two hours per week.

**Prerequisites:** MUS 2530 with a minimum grade of C**Term Offered:** Spring**MUS 2560 Introduction to Voice and Diction 2**

[2 credit hours]

Intro to Voice and Diction II: Voice for Freshman and Vocal Diction – The second class designed to build upon the skills discussed and demonstrated in Intro to Voice and Diction I. This class will concentrate on the continued skills required to learn more advanced vocal repertoire such as the operatic aria or Romantic song cycle. Advanced, International Phonetic Alphabet sounds and symbols will be part of tools used to aid in the pronunciation and recognition in German and French classical repertoire. More advanced concepts such as acoustical physics and resonance in the human instrument will also be introduced and discussed. This creates contextual learning, while building a foundation of experiential knowledge for future training.

**Prerequisites:** MUS 2520 with a minimum grade of D-**Corequisites:** MUS 1800**Term Offered:** Spring**MUS 2570 Piano Class For Music Majors III**

[1 credit hour]

Provides instruction in keyboard skills required for the various degree programs. Progressive sequence of courses stressing technique, repertoire, sight reading, harmonization, improvisation and transposition. Includes keyboard technology.

**Prerequisites:** MUS 1580 with a minimum grade of C**Term Offered:** Fall**MUS 2580 Piano Class For Music Majors IV**

[1 credit hour]

Provides instruction in keyboard skills required for the various degree programs. Progressive sequence stressing technique, repertoire, sight reading, harmonization, improvisation and transposition. Includes keyboard technology.

**Prerequisites:** MUS 2570 with a minimum grade of C**Term Offered:** Spring



**MUS 2590 Class Piano For Piano Majors**

[2 credit hours]

MUS-2590 KEYBOARD FUNDAMENTALS for PIANO MAJORS, to be taken in conjunction with music theory. Fundamental keyboard skills including harmony, technique, transposition, improvisation, sight reading, score reading, and ensemble playing.

**Corequisites:** MUS 1610, MUS 2610**MUS 2610 Music Theory And Ear Training III**

[4 credit hours]

Continuation of 1620. Students develop proficiency in all musical elements through analytical, written and aural studies. Primary materials are the common practice period literature and small formal units. Includes computer technology.

**Prerequisites:** MUS 1620 with a minimum grade of C**Term Offered:** Fall**MUS 2620 Music Theory And Ear Training IV**

[4 credit hours]

Continuation of 2610. Students are introduced to contemporary topics, styles and music through analysis and creative assignments. Dictation and sightsinging studies will also develop topics from MUS 2610. Includes computer technology.

**Prerequisites:** MUS 2610 with a minimum grade of C**Term Offered:** Spring**MUS 2700 Jazz Improvisation I**

[2 credit hours]

Practical application of beginning jazz improvisation techniques as applied to modal, blues and simple jazz standards. Basic chord-scale relationships, ear training, and style analysis is presented.

**Prerequisites:** MUS 1700 with a minimum grade of C**Term Offered:** Fall**MUS 2710 Jazz Improvisation II**

[2 credit hours]

Practical application of intermediate jazz improvisation techniques as applied to jazz standards and bebop playing.

**Prerequisites:** MUS 2700 with a minimum grade of C**Term Offered:** Spring**MUS 2800 Applied Music**

[1-4 credit hours]

Private music lessons for sophomore music majors.

**Prerequisites:** MUS 1800 with a minimum grade of B**Term Offered:** Spring, Summer, Fall**MUS 3010 University Band**

[1 credit hour]

The Rocket Marching Band appears at all home football games during the fall semester. Any UT student with previous experience may participate.

Contact the instructor for audition information.

**Term Offered:** Fall**MUS 3020 Jazz Ensemble**

[1 credit hour]

Students rehearse and perform a diverse repertoire for large jazz ensemble. Open to all students by audition in the first week of each semester and/or permission of instructor.

**Term Offered:** Spring, Fall**MUS 3040 University Wind Ensemble**

[1 credit hour]

Open to a limited number of qualified students.

**MUS 3050 Chamber Music Ensembles**

[1 credit hour]

The study and performance of chamber music literature in classical or jazz Styles. By permission of instructor.

**Term Offered:** Spring, Fall**MUS 3060 Symphonic Band**

[1 credit hour]

Students rehearse and perform a diverse concert band repertoire. Open to all students through audition or permission of instructor.

**Term Offered:** Spring, Fall**MUS 3070 Varsity Band**

[1 credit hour]

Students rehearse and perform a diverse athletic band repertoire. Open to all students through audition or permission of instructor.

**Term Offered:** Spring, Fall**MUS 3090 University Orchestra**

[1 credit hour]

Performs a variety of symphonic repertoire. Open to all students through audition.

**Term Offered:** Spring, Fall**MUS 3100 Introduction to Opera I**

[1 credit hour]

Introducing young singers to the art form of opera through a blended model of lecture and skill building participation exercises.

**Term Offered:** Spring, Fall**MUS 3120 Intro to Opera II**

[1 credit hour]

Part II of the Intro to Opera classes that prepare singers in the art form of opera through a blended model of lecture and skill building participation exercises as well as participation in the staged production by helping with production aspects such as costumes, set building, marketing, make-up, and super-titles.

**Prerequisites:** MUS 3100 with a minimum grade of D-**Term Offered:** Spring, Fall**MUS 3130 University Chorus**

[1 credit hour]

This non-auditioned mixed (SATB) choral ensemble is open to any student. Performing music in a variety of styles, this ensemble places a primary focus on developing musicianship and basic vocal technique.

**Term Offered:** Spring, Summer, Fall**MUS 3140 Concert Chorale**

[1 credit hour]

This large, auditioned, mixed (SATB) choral ensemble is made up of 40-60 singers. This group is primarily made up of non-music majors who excel in vocal technique and production and who display high-level musical ability. They perform regularly on and off campus. This ensemble requires an audition and instructor approval.

**Term Offered:** Spring, Fall

**MUS 3150 Jazz Vocalstra**

[1 credit hour]

Students rehearse and perform traditional vocal Jazz literature and Vocalese. Open to qualified students by audition at the beginning of each semester and/or permission of instructor.

**Term Offered:** Spring, Fall**MUS 3160 Rocket Choristers**

[1 credit hour]

This non-auditioned treble voice (SSAA) choral ensemble is open to any student. Performing music in a variety of styles, this ensemble places a primary focus on developing musicianship and basic vocal technique.

**Term Offered:** Spring, Fall**MUS 3170 Chamber Singers**

[1 credit hour]

This auditioned mixed (SATB) choral ensemble is the premiere choral ensemble at the University of Toledo. With a focus on advanced vocal techniques and performance, this ensemble requires an audition and instructor approval.

**Term Offered:** Spring, Summer, Fall**MUS 3180 Glee Club**

[1 credit hour]

This non-auditioned Tenor/Bass voiced (TTBB) choral ensemble is open to any student. Performing music in a variety of styles, this ensemble places a primary focus on developing musicianship and basic vocal technique.

**Term Offered:** Spring, Fall**MUS 3190 Opera Workshop**

[1 credit hour]

Performs both contemporary and classic Opera. Open to a limited number of qualified students.

**Term Offered:** Spring, Fall**MUS 3200 Opera Production**

[1 credit hour]

Audition only ensemble, with pre-requisites required of Intro to Opera I and Intro to Opera II. This course is designed to provide students with a complete experience in developing the craft of opera from all aspects including marketing, backstage, on stage and the front of the house. This is an advanced performance course for upper division vocal performance students. Building on the skills and experience from (MUS 3100) Intro to Opera I and (MUS 3120) Intro to Opera II this course is designed to provide real-life professional experience in opera production.

**Prerequisites:** MUS 3100 with a minimum grade of D- and MUS 3120 with a minimum grade of D-

**Term Offered:** Spring, Fall**MUS 3260 Advanced Electronic Music**

[3 credit hours]

Both lecture sessions and creative lab assignments. Pre-requisite is MUS 2260 or by permission of the instructor. In particular, the current computer application Reason is examined and put to test in fine detail. Students will use the application in both sound-recording and virtual, MIDI instrument production. Lab productions are published.

**Prerequisites:** MUS 2260 with a minimum grade of C

**Term Offered:** Spring, Fall**MUS 3270 Advanced Recording Techniques**

[2 credit hours]

Both lecture sessions and creative lab assignments. Pre-requisite is MUS 2270 or by permission of the instructor. Material emphasizes music production in a professional recording studio. Students collaborate in the tracking, mixing, and mastering of complete song titles both originals and covers. Students will self-publish completed songs.

**Prerequisites:** MUS 2270 with a minimum grade of C

**Term Offered:** Spring, Fall**MUS 3410 Music History And Literature II**

[3 credit hours]

A study of the literature, composers, theorists, trends and musical style of Western Music from Plainchant through Early Classic.

**Term Offered:** Fall**MUS 3420 Music History And Literature III**

[3 credit hours]

An intensive study of the music of the Late Classic period to the present day through the examination of major trends and styles.

**Term Offered:** Spring**MUS 3450 Jazz History And Literature**

[3 credit hours]

An in-depth study of jazz styles, trends, performers and composers geared for music majors.

**Term Offered:** Spring**MUS 3500 Conducting**

[2 credit hours]

Basic baton techniques and rehearsal routine applicable to both vocal and instrumental conducting. Preparation of scores and opportunity for conducting experience with student groups. Includes MUS 1000:002 and video recording technology.

**Prerequisites:** MUS 1620 with a minimum grade of C

**Term Offered:** Fall**MUS 3510 Choral Conducting**

[2 credit hours]

Conducting techniques and rehearsal routine especially concerned with choral groups. Opportunities to direct choral groups. Includes MUS 1000:002 and video recording technology.

**Term Offered:** Spring, Summer**MUS 3520 Instrumental Conducting**

[2 credit hours]

Conducting techniques and rehearsal routine especially concerned with instrumental ensembles. Opportunities to direct student instrumental groups. Includes MUS 1000:002 and video recording technology.

**Prerequisites:** MUS 3500 with a minimum grade of C

**Term Offered:** Spring**MUS 3530 Marching Band Techniques**

[1 credit hour]

The pedagogy and administration of marching bands in secondary schools. Includes practical laboratory experiences and use of relevant technology and software.

**Term Offered:** Fall

**MUS 3550 Vocal Pedagogy and Literature 1**

[2 credit hours]

This class will provide students with a twofold practical application of how to teach varied forms of vocal literature as it relates to pedagogical strategies and vocal technique. This class also includes a Vocal Literature review from the Renaissance period to the 18th century Classical repertoire. This review of Vocal Literature would apply to pedagogical techniques such as stylistic considerations, phrasing, range, language and vocal demands through breath and support..

**Prerequisites:** MUS 2410 with a minimum grade of D-**Term Offered:** Spring, Fall**MUS 3560 Jazz Pedagogy And Conducting**

[2 credit hours]

An in-depth study of Jazz pedagogical materials and methods as well as rehearsal and conducting techniques.

**Prerequisites:** MUS 2620 with a minimum grade of C**Term Offered:** Spring, Fall**MUS 3590 Piano Pedagogy**

[2 credit hours]

Exploration of techniques and materials for comprehensive, private and group instruction.

**Term Offered:** Spring, Fall**MUS 3610 Form And Analysis**

[3 credit hours]

The study of musical structures: the theme, the motive, the phrase and analysis of homophonic and polyphonic forms and procedures.

**Prerequisites:** MUS 2620 with a minimum grade of C**Term Offered:** Fall**MUS 3630 Instrumentation**

[3 credit hours]

A study of wind, percussion and string instrumentation; scoring for small ensembles, band and orchestra. Opportunities for performances of student scores by university organizations. Includes computer technology.

**Prerequisites:** MUS 2620 with a minimum grade of C**Term Offered:** Spring**MUS 3650 Jazz Arranging And Composition I**

[3 credit hours]

Scoring for contemporary jazz ensembles. A study of jazz notations, voicing, orchestration and composition for small jazz groups and the rhythm section.

**Prerequisites:** MUS 2620 with a minimum grade of C**Term Offered:** Fall**MUS 3660 Jazz Arranging And Composition II**

[3 credit hours]

Advanced scoring for contemporary jazz ensembles. A study of notations, voicing, orchestration and composition for large jazz groups.

**Prerequisites:** MUS 3650 with a minimum grade of C**Term Offered:** Spring**MUS 3700 Jazz Improvisation III**

[2 credit hours]

Practical application of advanced jazz improvisation techniques as applied to post-bop, fusion and avant-garde playing.

**Prerequisites:** MUS 2710 with a minimum grade of C**Term Offered:** Fall**MUS 3710 Jazz Improvisation IV**

[2 credit hours]

Practical application of jazz improvisation techniques as applied to contemporary and chromatic jazz composition and performance.

**Prerequisites:** MUS 3700 with a minimum grade of C**Term Offered:** Spring**MUS 3800 Applied Music**

[1-4 credit hours]

Private music lessons for junior music majors.

**Prerequisites:** MUS 2800 with a minimum grade of B**Term Offered:** Spring, Summer, Fall**MUS 3810 Recital**

[1 credit hour]

A juried public performance of no more than 25-minutes of musical compositions selected from repertoire studied in MUS 3800 and in consultation with the student's major applied professor.

**Prerequisites:** MUS 2800 with a minimum grade of C**Corequisites:** MUS 3800**Term Offered:** Spring, Fall**MUS 4410 Instrumental Music Literature**

[3 credit hours]

Course will examine the development of the orchestral and chamber repertoire, from their origins to the present day.

**Prerequisites:** (MUS 2410 with a minimum grade of C and MUS 2420 with a minimum grade of C)**Term Offered:** Spring**MUS 4420 Vocal Pedagogy and Literature 2**

[2 credit hours]

This course is the second class in a two-semester sequence. This class will continue to build upon the twofold practical applications of how to teach varied forms of vocal literature as it relates to pedagogical strategies and vocal technique.

**Prerequisites:** MUS 3550 with a minimum grade of D-**Term Offered:** Spring, Fall**MUS 4450 Keyboard Literature**

[3 credit hours]

A survey of piano or organ/harpsichord literature from earliest publications to the present. Emphasis on a particular period or genre at the discretion of the instructor.

**Term Offered:** Spring, Fall**MUS 4620 Counterpoint: Introduction**

[3 credit hours]

The study of counterpoint in modal, tonal, and contemporary styles.

Studies include contrapuntal techniques such as imitation, canon, invertible counterpoint, non-harmonics and the balance of consonance and dissonance. Formal constructions studied include motets, canons, inventions, and fugues.

**Prerequisites:** MUS 2620 with a minimum grade of C**Term Offered:** Spring

**MUS 4690 Seminar In Music Composition**

[2 credit hours]

May be repeated, but maximum accumulated credit is six hours toward graduation. Beginning composition including writing in the smaller musical forms. Opportunity for performance of original student compositions.

**Prerequisites:** MUS 2620 with a minimum grade of C**Term Offered:** Spring, Fall**MUS 4800 Applied Music**

[1-4 credit hours]

Private music lessons for seniors.

**Prerequisites:** MUS 3800 with a minimum grade of B**Term Offered:** Spring, Summer, Fall**MUS 4810 Recital**

[1 credit hour]

A juried public performance of no more than 50-minutes of musical compositions selected from repertoire studied in MUS 4800 and in consultation with a student's major applied professor.

**Prerequisites:** MUS 4800 with a minimum grade of B**Corequisites:** MUS 4800**Term Offered:** Spring, Fall**MUS 4850 Advanced Vocal Pedagogy**

[3 credit hours]

An upper-division level course designed to more intricately address pedagogical strategies for vocal instruction, with an emphasis on surveying methods and research in singing voice specialization as it relates to vocal dysfunction and correction within the context of vocal instruction. This course aims to train future singer/vocal instructors to appropriately teach students of all ages and abilities, as well as diagnose and correct common vocal faults and dysphonias.

**Prerequisites:** MUS 3550 with a minimum grade of D- and MUS 4420 with a minimum grade of D-**Term Offered:** Spring**MUS 4980 Seminar: Special Topics**

[1-3 credit hours]

Critical inquiry into specific topics through lectures, class seminar reports and discussion. Seminar topics announced in semester schedule of classes.

**Term Offered:** Spring, Summer, Fall**MUS 4990 Special Projects**

[1-3 credit hours]

Designed to meet the needs of individual students who wish to pursue projects in the area of music.

**Term Offered:** Spring, Summer, Fall

## Music Education (MED)

**MED 1000 Music Education Lab**

[0 credit hours]

Experiential learning for music education majors. All music education majors must register for this course when enrolled in the following classes: MUS 1500, 1510, 1530, 1550, 1560, 3500, 3510, 3520, or any MED course. A total of 5 semesters is required. Offered as P/NC only. - 0 hours.

**Term Offered:** Spring, Fall**MED 3000 Foundations Of Music Education**

[2 credit hours]

General overview of music education. Addresses history and philosophy of music education, music in a diverse society, classroom observation skills, analysis of music teaching, classroom communication and educational theories.

**Term Offered:** Spring, Fall**MED 3030 Music For The Early Childhood Teacher**

[2 credit hours]

Topics: Children's voices, music literacy, appreciation, creativity, classroom instruments. Analysis of music books, comparative methodology, curriculum integration. May include field experience.

**Term Offered:** Spring, Summer, Fall**MED 3310 Music For Children**

[3 credit hours]

Topics: Children's voices, music reading readiness and music reading, appreciation, creativity, use of classroom instruments. Projects: Analysis of music books for children, a comparative review of Orff, Kodaly, Dalcroze, & Gordon. Field experience required.

**Term Offered:** Spring, Fall**MED 3320 Secondary School Vocal Methods For Music Majors**

[3-4 credit hours]

Choral/General cluster 4 cr.; Instrumental cluster 3 cr. An overview of secondary school problems of vocal music education. Field experience required. Includes participation in MUS 1000:002.

**Term Offered:** Fall**MED 3330 Early Childhood Music Methods For Music Majors**

[3 credit hours]

Topics include children's voices, music readiness skills, appreciation, creativity, use of classroom instruments. Projects include keyboard technology, analysis of basic series, a comparative review of Orff, Kodaly, Dalcroze and Gordon. Includes computer and keyboard technology and field experience.

**MED 4900 Student Teaching Seminar**

[2 credit hours]

This course is required for all music education majors. This course focuses reflectivity on common experiences in student teaching. Attention is also given to resume preparation, portfolio use and job interviews.

**Term Offered:** Spring, Fall**MED 4930 Student Teaching**

[6-12 credit hours]

This course is required for all music education majors. Planned field experiences in public school classrooms under the direction of University supervisors. Observation of teaching of experienced teachers; gradual acceptance of full teaching responsibility by student teacher. Must register for 6 hours elementary and 6 hours secondary.

**Prerequisites:** Upper Division with a score of 1**Term Offered:** Spring, Fall

**MED 4990 Individual Study In Music Education For Undergraduate Students**

[1-3 credit hours]

Individual study is designed to provide a student with the opportunity to work individually on professional interests and concerns under the direction of the faculty of the Department of Music.

**Term Offered:** Spring, Summer, Fall

## Natural Sciences & Mathematics (NSM)

**NSM 1000 Natural Sciences & Mathematics**

[2 credit hours]

THIS COURSE IS REQUIRED BY ALL UNDERGRADUATE PROGRAMS IN THE COLLEGE. Course will introduce new students to the University and college, provide information on requirements, regulations, campus resources and career exploration, and help students achieve their academic goals.

**Term Offered:** Spring, Fall**NSM 3000 Transformative Ideas in Science**

[4 credit hours]

A broad-ranging exploration of how major scientific discoveries and advances over the past several centuries have transformed and shaped modern science, and through that, the modern world. Lectures on transformative topics from all disciplines in NSM, an introduction to critical thinking skills and their application to the pursuit of scientific 'truth', and training and practice in writing about science.

**Prerequisites:** CHEM 1230 with a minimum grade of C- and CHEM 1240 with a minimum grade of C- or MATH 1830 with a minimum grade of C- and MATH 1840 with a minimum grade of C- or MATH 1850 with a minimum grade of C- and MATH 1860 with a minimum grade of C- or BIOL 2150 with a minimum grade of C- and BIOL 2170 with a minimum grade of C- or PHYS 2070 with a minimum grade of C- and PHYS 2075 with a minimum grade of C- and PHYS 2080 with a minimum grade of C- and PHYS 2085 with a minimum grade of C- or PHYS 2130 with a minimum grade of C- and PHYS 2135 with a minimum grade of C- and PHYS 2140 with a minimum grade of C- and PHYS 2145 with a minimum grade of C- or ASTR 2010 with a minimum grade of C- and ASTR 2020 with a minimum grade of C- or EEES 2020 with a minimum grade of C- and EEES 2030 with a minimum grade of C- or EEES 2100 with a minimum grade of C- and EEES 1020 with a minimum grade of C-

**Term Offered:** Spring, Fall

## Neuroscience (NCIS)

**NSCI 1000 The Neuropsychiatric Patient**

[1 credit hour]

Introduction to the diagnosis, disease and pathophysiology of the nervous system, with an emphasis on live patient interviews, didactic Q and A sessions with patients, and integration of basic disease pathophysiology with neuroanatomy and neurophysiology.

**Term Offered:** Spring, Fall**NSCI 2050 Fundamentals of Neuroscience I**

[3 credit hours]

Introduction to the structure and function of the nervous system at cellular and anatomical levels, with an emphasis on neuronal communication, information flow, and integration among major nervous system components

**Prerequisites:** BIOL 2170 with a minimum grade of C and CHEM 1230 with a minimum grade of C

**Term Offered:** Spring, Fall**NSCI 3050 Fundamentals of Neuroscience II**

[3 credit hours]

Exploration of the major neural mechanisms that generate, transform, integrate, and store information, drive behavior, maintain physiological homeostasis, and cause neurological disease when compromised.

**Prerequisites:** (BIOL 2050 with a minimum grade of C or NSCI 2050 with a minimum grade of C) and CHEM 1240 with a minimum grade of C

**Term Offered:** Fall**NSCI 3060 Neuroscience Laboratory**

[2 credit hours]

A practical course providing training in foundational laboratory techniques in the neurosciences.

**Prerequisites:** NSCI 3050 with a minimum grade of C and BIOL 2180 with a minimum grade of C

**Term Offered:** Spring**NSCI 4010 Functional Neuroanatomy**

[3 credit hours]

The goal of this course is to provide the student with a detailed understanding of multiple aspects of functional neuroanatomy. The course will cover basic knowledge supported by case studies or relevant current research. Each topic will cover both gross and microscopic structure with an emphasis on understanding how the structure underlies the function.

**Prerequisites:** NSCI 3050 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Fall**NSCI 4020 Neuropharmacology**

[3 credit hours]

This course covers the neuropharmacotherapy of the movement disorders, epilepsy and anticonvulsant drugs, migraine and anti-migraine drugs, sleep disorders, anxiety disorders, depression, bipolar disorders, stimulants, schizophrenia and antipsychotics.

**Prerequisites:** NSCI 3050 with a minimum grade of D-

**Term Offered:** Fall**NSCI 4030 Cell Biology of Neurons and Glia**

[3 credit hours]

An advanced course examining the cell biology of neurons and glia in normal nervous system function and disease.

**Prerequisites:** NSCI 3050 with a minimum grade of C and BIOL 3030 with a minimum grade of C

**Term Offered:** Fall

**NSCI 4050 Cognitive Neuroscience**

[3 credit hours]

This course will examine the core cognitive processes underlying human behavior and relate them to underlying cellular, physiological and anatomical substrates. The methods, techniques and approaches used to study these processes in humans, as well as in model organisms, will be explored.

**Prerequisites:** NSCI 3050 with a minimum grade of D-

**Term Offered:** Spring

**NSCI 4100 Neuroinformatics**

[3 credit hours]

Introduction to computational techniques as they relate to the field of neuroscience, with an emphasis on hands-on training and understanding of the processes involved.

**Prerequisites:** BIOL 3010 with a minimum grade of D-

**Term Offered:** Fall

**NSCI 4510 Medical Neuroanatomy I - Topographic**

[3 credit hours]

This course is designed for Neuroscience undergraduate students to study the anatomy of the central and peripheral nervous systems. The student will have a solid working knowledge of both the external and internal structure of the nervous system as well as neurological pathways, systems, and circuits.

**Prerequisites:** NSCI 4010 with a minimum grade of D-

**Term Offered:** Fall

**NSCI 4520 Medical Neuroanatomy II - Systems**

[3 credit hours]

This course is designed for Neuroscience undergraduate students to study the functional aspects of the neurological pathways and circuits of the central nervous system. The student will have a solid working knowledge of both the external and internal structure of the nervous system as well as neurological pathways, systems, and circuits.

**Prerequisites:** NSCI 4510 with a minimum grade of D-

**Term Offered:** Spring

**NSCI 4710 Biophysics of Excitable Membranes**

[3 credit hours]

Overview of major components and physical principles that define function of cell membranes including the structure of cell membrane, presence of pumps, channels and transporters.

**Prerequisites:** NSCI 3050 (may be taken concurrently) with a minimum grade of D- and PHYS 2080 (may be taken concurrently) with a minimum grade of D- and PHYS 2085 (may be taken concurrently) with a minimum grade of D- and MATH 1760 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Spring

**NSCI 4910 Biomedical Publishing**

[1 credit hour]

Academic and student development course offering an introduction to an open access peer reviewed journal. Offers strategies to gain a better understanding of this example of journal system by examining and eventually assisting with The University of Toledo Journal of Medical Sciences (Translation) through process, procedures, and application.

**Term Offered:** Spring, Summer, Fall

# Nursing (NURS)

**NURS 1000 Professional Nursing Orientation**

[1 credit hour]

Course provides opportunity for development of academic, personal, and interpersonal skills required to become a successful, independent learner, introduces student to professional nursing as a career.

**Term Offered:** Spring, Fall

**NURS 3020 Nursing to Promote Wellness**

[4 credit hours]

Focus on wellness and primary prevention across the lifespan. Introduction to nursing as a discipline. Emphasis on concepts of wellness, communication, lifespan, clinical judgment, and physiologic processes. Recognize individuals in context of family and community. Student experiences in community-based settings.

**Corequisites:** NURS 3030, NURS 3080, NURS 3150

**Term Offered:** Spring, Summer, Fall

**NURS 3030 Evidence-Based Practice in Nursing**

[3 credit hours]

Introduction to Evidence-Based Practice in nursing, including understanding nursing research (scientific evidence) and its application to nursing practice. Skills learned in this course include appraisal of nursing evidence, integration of the best evidence into nursing practice, and promoting ethical principles in the conduct of nursing research and evidence-based practice.

**Corequisites:** NURS 3020, NURS 3080, NURS 3150

**Term Offered:** Spring, Summer, Fall

**NURS 3040 Nursing to Promote Wellness Across the Lifespan**

[5 credit hours]

Focus on wellness and primary prevention across the lifespan. Introduction to nursing as a discipline. Emphasis on concepts of wellness, communication, lifespan, clinical judgment and physiologic processes. Recognize individuals in context of family and community. Student experiences in community-based settings.

**Corequisites:** NURS 3080, NURS 3150, NURS 3190

**Term Offered:** Spring, Summer, Fall

**NURS 3080 Fundamentals of Nursing and Assessment Across the Lifespan**

[5 credit hours]

Focus on holistic assessment of individuals across the lifespan. Emphasis on assessment, skills, technology and professional nursing role. Experiential learning with peers in a simulated environment.

**Corequisites:** NURS 3020, NURS 3030, NURS 3150

**Term Offered:** Spring, Summer, Fall

**NURS 3150 Pathopharmacology 1**

[3 credit hours]

Focus on fundamental concepts in pathophysiology and pharmacology across the life span. Foundation for understanding disease processes and drugs [i.e. therapeutic outcomes and potential drug interactions].

**Corequisites:** NURS 3020, NURS 3030, NURS 3080

**Term Offered:** Spring, Summer, Fall

**NURS 3190 Nursing Research 1**

[2 credit hours]

Focus on introduction of concepts, issues, and processes in nursing research.

**Corequisites:** NURS 3040, NURS 3080, NURS 3150

**Term Offered:** Spring, Summer, Fall

**NURS 3220 Medical-Surgical Nursing 1**

[5 credit hours]

Focus on holistic care of adults and older adults in acute-care setting experiencing health problems. Incorporates concepts of leadership and management with an emphasis on teamwork and communication. Recognizes individuals in context of family and community.

**Prerequisites:** NURS 3020 with a minimum grade of C and NURS 3030 with a minimum grade of C and NURS 3080 with a minimum grade of C and NURS 3150 with a minimum grade of C

**Corequisites:** NURS 3280, NURS 3540, NURS 4070

**Term Offered:** Spring, Summer, Fall

**NURS 3280 Advanced Fundamentals**

[3 credit hours]

Focus on application of assessment skills and demonstrating safe procedures for high risk interventions in simulated experiences. Emphasis on the concepts of clinical judgment, professional behaviors, and collaboration.

**Prerequisites:** NURS 3020 with a minimum grade of C and NURS 3030 with a minimum grade of C and NURS 3150 with a minimum grade of C and NURS 3080 with a minimum grade of C

**Corequisites:** NURS 3220, NURS 3540, NURS 4070

**Term Offered:** Spring, Summer, Fall

**NURS 3290 Nursing Research 2**

[1 credit hour]

Introduction to evidence based practice. Emphasis is on learning how to evaluate research for evidence based practice in nursing as a baccalaureate nurse.

**Prerequisites:** NURS 3040 with a minimum grade of C and NURS 3190 with a minimum grade of C and NURS 3150 with a minimum grade of C and NURS 3080 with a minimum grade of C

**Corequisites:** NURS 3300, NURS 3400, NURS 3540

**Term Offered:** Spring, Summer, Fall

**NURS 3300 Nursing Care of Persons with Health Challenges**

[4 credit hours]

Focus on holistic care of adults and older adults in acute care settings experiencing health problems. Emphasis on the concepts of leadership, collaboration, and communication. Recognizes individuals in context of family and community.

**Prerequisites:** NURS 3040 with a minimum grade of C and NURS 3190 with a minimum grade of C and NURS 3080 with a minimum grade of C and NURS 3150 with a minimum grade of C

**Corequisites:** NURS 3280, NURS 3400, NURS 3540

**Term Offered:** Spring, Summer, Fall

**NURS 3310 Mental Health Nursing**

[4 credit hours]

Focus on nursing care of persons across the lifespan in the acute care setting with mental health issues. Emphasis on concepts related to coping and stress tolerance; emotion; cognitive function; and maladaptive behavior.

**Prerequisites:** NURS 3280 with a minimum grade of C and NURS 3220 with a minimum grade of C and NURS 3540 with a minimum grade of C and NURS 4070 with a minimum grade of C

**Corequisites:** NURS 3320, NURS 3330, NURS 4630

**Term Offered:** Spring, Fall

**NURS 3320 Medical-Surgical Nursing 2**

[5 credit hours]

The purpose of the course is to focus on care of adult persons in medical-surgical environments in the community. Course materials will assist with knowledge required to care for these persons.

**Prerequisites:** NURS 3220 (may be taken concurrently) with a minimum grade of C and NURS 3280 (may be taken concurrently) with a minimum grade of C and NURS 3540 (may be taken concurrently) with a minimum grade of C and NURS 4070 (may be taken concurrently) with a minimum grade of C

**Corequisites:** NURS 3310, NURS 3330, NURS 4630

**Term Offered:** Spring, Fall

**NURS 3330 Pediatric Nursing**

[4 credit hours]

The student has opportunities to gain experience in nursing care of infants, children and adolescents within families and groups. Clinical experiences are in wellness, acute and chronic care settings.

**Prerequisites:** NURS 4070 with a minimum grade of C and NURS 3540 with a minimum grade of C and NURS 3220 with a minimum grade of C and NURS 3280 with a minimum grade of C

**Corequisites:** NURS 3310, NURS 3320, NURS 4630

**Term Offered:** Spring, Fall

**NURS 3400 Family Health**

[4 credit hours]

Focus on health, wellness and illness of child - bearing families and children across various settings. Emphasis on concepts of gas exchange, sexuality, reproduction, grief, mood and affect, family, safety, advocacy and family communication. Recognizes individuals in context of family and community.

**Prerequisites:** NURS 3040 with a minimum grade of C and NURS 3190 with a minimum grade of C and NURS 3150 with a minimum grade of C and NURS 3080 with a minimum grade of C

**Corequisites:** NURS 3280, NURS 3300, NURS 3540

**Term Offered:** Spring, Summer, Fall

**NURS 3540 Pathopharmacology 2**

[3 credit hours]

Focuses on selected alterations and related pharmacology across the life span. Foundation for understanding disease processes and drugs [i.e. therapeutic outcomes and potential drug interactions]. Basis for critical thinking in nursing to help clients cope with effects of illness and return to health. Emphasis on concepts of: clotting, elimination, gas exchange, intracranial regulation, mood & affect, nutrition, patient education, perfusion, reproduction, sensory perception, tissue integrity.

**Prerequisites:** NURS 3020 with a minimum grade of C and NURS 3030 with a minimum grade of C and NURS 3150 with a minimum grade of C and NURS 3080 with a minimum grade of C

**Corequisites:** NURS 3220, NURS 3280, NURS 4070

**Term Offered:** Spring, Summer, Fall

**NURS 4070 Family Health Nursing**

[4 credit hours]

Focus on health, wellness and illness of child-bearing families and women across the lifespan. Emphasis on concepts of gas exchange, sexuality, reproduction, grief, mood and affect, family, safety, advocacy, and family communication. Recognizes individuals in context of family and community.

**Prerequisites:** NURS 3020 with a minimum grade of C and NURS 3030 with a minimum grade of C and NURS 3080 with a minimum grade of C and NURS 3150 with a minimum grade of C

**Corequisites:** NURS 3220, NURS 3280, NURS 3540

**Term Offered:** Spring, Summer, Fall

**NURS 4100 Transition to BSN Practice**

[3 credit hours]

Explores concepts relevant to the transition from ADN/Diploma RN role to BSN nursing practice.

**Term Offered:** Spring, Summer, Fall

**NURS 4110 Applied Health Assessment Across the Lifespan**

[3 credit hours]

This course emphasizes the concepts and skills essential to the assessment parameter of the nursing process to broaden the learners' knowledge base and to increase assessment skills in all settings.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4130 Nursing Care of Persons in Crisis 1**

[4 credit hours]

Focus on nursing care of persons across the lifespan in the acute care setting with mental health issues. Emphasis on concepts related to coping and stress tolerance; emotion; cognitive function; and maladaptive behavior.

**Prerequisites:** NURS 3280 with a minimum grade of C and NURS 3300 with a minimum grade of C and NURS 3540 with a minimum grade of C and NURS 3290 with a minimum grade of C and NURS 3400 with a minimum grade of C

**Corequisites:** NURS 4240, NURS 4260

**Term Offered:** Spring, Summer, Fall

**NURS 4240 Nursing Care of Persons in Crisis 2**

[8 credit hours]

Focus on changes in health in acute care settings across the lifespan. Emphasis on concepts related to oxygenation and hemostasis; homeostasis and regulation; protection and movement, and coping and stress tolerance.

**Prerequisites:** NURS 3280 with a minimum grade of C and NURS 3300 with a minimum grade of C and NURS 3400 with a minimum grade of C and NURS 3290 with a minimum grade of C and NURS 3540 with a minimum grade of C

**Corequisites:** NURS 4130, NURS 4260

**Term Offered:** Spring, Summer, Fall

**NURS 4260 Professional Development**

[3 credit hours]

This course facilitates the development and implantation of strategies to enable the synthesis of professional development for the baccalaureate nurse. The course enables the student to recognize and understand the critical role that nurses play in health care delivery. Students will analyze principles of professional practice and will explore strategies to model the professional practice role in current clinical situations. This course also assists the student in the online classroom environment.

**Prerequisites:** NURS 3280 with a minimum grade of C and NURS 3300 with a minimum grade of C and NURS 3540 with a minimum grade of C and NURS 3290 with a minimum grade of C and NURS 3400 with a minimum grade of C

**Corequisites:** NURS 4130, NURS 4240

**Term Offered:** Spring, Summer, Fall

**NURS 4300 Informatics in Nursing**

[2 credit hours]

Focuses on current and future topics of informatics in nursing. Foundation for competency in documentation, informatics-based theory, implementation of evidence-based quality measures, evolving trends, legal, ethical implications.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4340 Population Focused Care**

[5 credit hours]

This course facilitates the development and implementation of strategies to enable the synthesis of professional development for the baccalaureate nurse within the community. The course enables the student to recognize and understand the critical role that nurses play in community and public health care delivery. Students will analyze principles of public health and will explore strategies to model the professional practice role in current community clinical situations. This course also assists the student in the online classroom environment. This is an online course.

**Prerequisites:** NURS 4350 (may be taken concurrently) with a minimum grade of C or NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall



**NURS 4360 Theory and Collaborative Practice**

[3 credit hours]

This course facilitates the development and implementation of strategies to enable the synthesis of nursing theory and collaborative practice for the baccalaureate nurse. The course enables the student to recognize and understand the critical role that nurses play in health care delivery collaboration. Students will analyze theories of nursing and will explore strategies to apply nursing theory in current clinical situations. This course also assists the student in the online classroom environment.

This is an online course.

**Prerequisites:** NURS 4350 (may be taken concurrently) with a minimum grade of C or NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4370 Health Promotion and Wellness Across the Lifespan**

[3 credit hours]

Focus on wellness and health promotion across the lifespan. Health promotion has become a national priority and is a foundation to the care for people of all ages.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4400 Quality and Safety in Nursing**

[2 credit hours]

Course examines responsibilities of baccalaureate prepared nurses in healthcare teams and ways they provide patient safety and quality care leading to optimum patient outcomes. This is an online course.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4500 Leadership and Professional Development**

[3 credit hours]

Focus on the professional nurse's role in applying the principles of leadership. Emphasis will be on leadership and professional development concepts to achieve safe, high quality patient-centered nursing care.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4510 Population Health**

[4 credit hours]

Focuses on the design and implementation of nursing care for aggregates and communities across the lifespan. Emphasis on professional nursing and health care concepts.

**Prerequisites:** NURS 3320 with a minimum grade of C and NURS 3310 with a minimum grade of C and NURS 3330 with a minimum grade of C and NURS 4630 with a minimum grade of C

**Corequisites:** NURS 4620, NURS 4700, NURS 4760

**Term Offered:** Spring, Summer

**NURS 4520 Pathopharmacology for the Practicing RN**

[3 credit hours]

Basic concepts of pathophysiology and pharmacology. Prepares for critical thinking in application of concepts to nursing practice.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4610 Translating Evidence for Nursing Practice**

[3 credit hours]

Introduces concepts, issues and processes in nursing evidence-based practice (EBP). Emphasis is on application of scientific evidence as a baccalaureate-prepared nurse, including critical appraisal and synthesis of evidence for EBP.

**Prerequisites:** NURS 4100 (may be taken concurrently) with a minimum grade of C and MATH 2600 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**NURS 4620 Precepted Clinical Practicum**

[5 credit hours]

Focus on partnering with clients (individuals, families, groups and/or communities) who are dealing with complex health problems of any age group and setting. Emphasis on concepts of health-care delivery, attributes and roles of nurse, and care competencies. Includes weekly seminars relevant to clinical issues.

**Prerequisites:** NURS 3310 with a minimum grade of C and NURS 3320 with a minimum grade of C and NURS 4630 with a minimum grade of C and NURS 3330 with a minimum grade of C

**Corequisites:** NURS 4510, NURS 4700, NURS 4760

**Term Offered:** Spring, Summer

**NURS 4630 Management of Care**

[2 credit hours]

This course focus on the principles and theories of management/ leadership as a basis for provision of nursing care. Emphasis on the concepts of health care delivery, health care infrastructures, and attributes and roles of the registered nurse.

**Prerequisites:** NURS 3280 with a minimum grade of C and NURS 3220 with a minimum grade of C and NURS 4070 with a minimum grade of C and NURS 3540 with a minimum grade of C

**Corequisites:** NURS 3310, NURS 3320, NURS 3330

**Term Offered:** Spring, Fall

**NURS 4700 Nursing Care of Persons and Families with Complex Care Needs**

[3 credit hours]

Focus on nursing care of people with complex health issues across the lifespan. Emphasis on care coordination and Interprofessional collaborative teamwork.

**Prerequisites:** NURS 3310 with a minimum grade of C and NURS 3320 with a minimum grade of C and NURS 3330 with a minimum grade of C and NURS 4630 with a minimum grade of C

**Corequisites:** NURS 4510, NURS 4620, NURS 4760

**Term Offered:** Spring, Summer

**NURS 4760 Professional Nursing Competency**

[3 credit hours]

Focus on preparation for the National Council Licensure Examination for Registered Nurses (NCLEX – RN). All concepts in the curriculum are included in comprehensive review.

**Prerequisites:** NURS 3310 with a minimum grade of C and NURS 3320 with a minimum grade of C and NURS 3330 with a minimum grade of C and NURS 4630 with a minimum grade of C

**Corequisites:** NURS 4510, NURS 4620, NURS 4700

**Term Offered:** Spring, Summer

**NURS 4990 Independent Study**

[1-3 credit hours]

Independent study in nursing.

**Term Offered:** Spring, Summer, Fall

## Occupational Therapy (OCCT)

**OCCT 1000 Toledo Transition (T2) - Postsecondary Program Seminar**

[1-5 credit hours]

Addresses topics on independent living, self-determination &amp; student development, academics, and employment.

**Term Offered:** Spring, Summer, Fall**OCCT 2550 PURPOSEFUL LIVING ROLE OF OCCUPATIONAL THERAPY**

[3 credit hours]

Introduces the occupational therapy profession and occupational therapy's role in maintaining functional daily living. Explore your daily occupations through self-reflection and develop strategies for personal growth.

**Term Offered:** Spring, Fall**OCCT 3990 Independent Study in Occupational Therapy**

[0-3 credit hours]

A course designed to provide educational opportunities related to occupational therapy under the direct supervision of a faculty member. Requires an agreement between the student and instructor/advisor.

**Term Offered:** Spring, Summer, Fall

## Operations & Supply Chain Management (OSCM)

**OSCM 3340 Quality Management and Process Improvement**

[3 credit hours]

Covers major aspects of lean processes and managing total quality functions in manufacturing/service operations. Includes: quality assurance, process control techniques, product liability and organization of the quality function as well as process improvement tools such as lean principles, process analysis.

**Prerequisites:** BUAD 3020 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**OSCM 3610 Operations Planning and Scheduling**

[3 credit hours]

A study of operations planning and its relation to organizational goals. Students learn concepts of developing materials and resources requirement plans, capacity management, just-in-time, resource scheduling in manufacturing and service organizations. Emerging concepts in the discipline will also be discussed.

**Prerequisites:** BUAD 3020 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**OSCM 3660 Strategic Sourcing**

[3 credit hours]

Relationship between supply management and firm's strategic goals, state-of-the-art supplier management, competing through effective supplier relationships, commodity strategy development, supplier negotiations, supplier selection and quality management, managing the RFP/RFQ process, cost management, and latest trends in sourcing and covered in the course.

**Prerequisites:** BUAD 3020 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**OSCM 4150 Supply Chain Analytics and Cases**

[3 credit hours]

This course focuses on developing skills in using techniques and software tools for the design and operational control of supply chains. Students will investigate issues relating to configuring supply chain networks (distribution systems), inventory deployment, planning and routing of transportation systems, warehouse and plant location and contract design etc. The focus will be on applications to practical situations. Necessary skills will be developed using cases, projects and presentations.

**Prerequisites:** BUAD 3020 with a minimum grade of D-**OSCM 4210 Project Management**

[3 credit hours]

This course covers planning, organizing and controlling projects. Topics such as project selection, scheduling, budgeting, resource management, project control, time-based competition and concurrent engineering will be discussed.

**Prerequisites:** BUAD 3020 with a minimum grade of D-**OSCM 4250 Business Analytics-Techniques and Cases**

[3 credit hours]

This course provides an introduction to the analytical tools and techniques used in business for decision making with focus on using data visualization, and data mining techniques. It also familiarizes and equips students with prescriptive and evaluative techniques. Industrial grade software along with case studies will be used.

**Prerequisites:** BUAD 2070 with a minimum grade of D-**OSCM 4500 Supply Chain Strategy**

[3 credit hours]

The course examines firms' strategic management of resources, and discusses its importance and benefits to its overall competitiveness. The purpose of the course is to provide students with an understanding of the content of firms' supply chain strategy and the processes by which they are developed and implemented. Topics covered in the course are related to operations/supply chain strategy, including environmental analysis, sustainability, product/service design, structure and infrastructure, coordination strategy, logistics and risk management.

**Prerequisites:** BUAD 3020 with a minimum grade of D- and MKTG 3130 with a minimum grade of D- and (OSCM 3340 with a minimum grade of D- and OSCM 3610 with a minimum grade of D- or OSCM 3660 with a minimum grade of D-)**Term Offered:** Spring

**OSCM 4760 Sim Mod/Anlys Spply Chn System**

[3 credit hours]

This course provides an introduction to the use of computer simulation for business decision making. Students are introduced to modeling uncertainty in supply chain systems using various techniques including Monte Carlo simulation, waiting line analysis, discrete event simulation and other emerging techniques using simulation software (such as @Risk, Simul8 and ARENA) and business cases.

**Prerequisites:** BUAD 3020 with a minimum grade of D-

**OSCM 4940 Internship**

[3 credit hours]

A prearranged work study program where students specializing in OPMT or SCM optain on the job experience while learning and applying the basic concepts and techniques of their respective discipline.

**Term Offered:** Spring, Summer, Fall

**OSCM 4980 Contemporary Topics In Operations and Supply Chain Management**

[3 credit hours]

Selected current topics in Operations Management practice, trends and technology.

**Prerequisites:** BUAD 3020 with a minimum grade of D-

**Term Offered:** Spring, Fall

## Peace and Justice Studies (PJS)

**PJS 1000 Introduction to Peace and Justice Studies**

[3 credit hours]

This survey course provides an overview to fundamental peace knowledge: theories of peace, ethics, violence, conflict and change in the context of historical and 21st century issues and events.

**Term Offered:** Spring, Fall

Core Social Sciences

**PJS 2000 Nonviolence and Conflict Transformation Theory and Practice**

[3 credit hours]

This course provides an overview of theories and principles of nonviolence, ethics of conflict, and conflict transformation; it engages students in the application of practical methods and skills of peacebuilding through the lenses of these theories and principles.

Core Arts & Humanities

**PJS 2500 Peace Education Facilitating Learning for Change in Schools and Beyond**

[3 credit hours]

The purpose of this course is to introduce the basic concepts, theories, and approaches to peace education. The course explores the theories of peace education, including pedagogical approaches to peace-learning for formal, informal, and non-formal learning settings. The course also introduces the substantive areas of peace education.

**Prerequisites:** PJS 1000 with a minimum grade of D- and PJS 2000 with a minimum grade of D-

**Term Offered:** Spring, Fall

**PJS 3000 Peace Lab Issues and Practices in Peace**

[3 credit hours]

Peace Lab is an experiential, issue-focused laboratory that introduces students to practical skills of research or program design for applied peacebuilding in a variety of settings. The project developed by the student is informed by and demonstrates understanding of their core peace studies knowledge. Students present their projects to the public in a scholarly fair/ conference organized by the course.

**Prerequisites:** PJS 1000 with a minimum grade of D- and PJS 2000 with a minimum grade of D- and PJS 2500 with a minimum grade of D-

**PJS 4000 Senior Capstone Seminar**

[3 credit hours]

The Capstone Seminar provides the opportunity for the student to develop a formal, independent study culminating in a written discourse that advances our understanding of peace studies or a formal, independent project applying principles of peace studies to analyze a particular problem and culminating in a written discourse. The course builds on the work projects formulated in the Peace Lab (PJS 3000).

**Prerequisites:** PJS 1000 with a minimum grade of D- and PJS 2000 with a minimum grade of D- and PJS 2500 with a minimum grade of D- and PJS 3000 with a minimum grade of D-

## Pharmacology (PHCL) (PHCL)

**PHCL 2220 Drugs, Medicine And Society**

[3 credit hours]

The course conveys a general knowledge of drugs, including how and where drugs act and the general pharmacology of specific classes of drugs, e.g., central nervous system active agents, bronchodilators, etc.

**Term Offered:** Spring

**PHCL 2600 Functional Anatomy And Pathophysiology I**

[4 credit hours]

A study of functional anatomy, physiology and pathophysiology to serve as background for the understanding of the action of drugs.

**Prerequisites:** (CHEM 1240 with a minimum grade of D- and CHEM 1290 with a minimum grade of D- and BIOL 2150 with a minimum grade of D- and BIOL 2160 with a minimum grade of D- and BIOL 2170 with a minimum grade of D- and BIOL 2180 with a minimum grade of D-)

**Term Offered:** Fall

**PHCL 2610 Introductory Physiology**

[3 credit hours]

This class is designed to give students a thorough introduction to human physiology and prepare them for success in the Pharmacy/ Pharmaceutical Science curriculum.

**Prerequisites:** BIOL 2170 with a minimum grade of D-

**Term Offered:** Spring, Fall

**PHCL 2620 Functional Anatomy And Pathophysiology II**

[4 credit hours]

A continuation of PHCL 2600.

**Prerequisites:** PHCL 2600 with a minimum grade of D-

**Term Offered:** Spring

**PHCL 2900 Pharmacology Research Introduction**

[1-3 credit hours]

The course will introduce the undergraduate student to research in pharmacology. Students will work with faculty members throughout the semester to learn a variety of fundamental laboratory procedures, including record keeping, pharmacological calculations, experimental design, set-up and conduct of assays, data analysis and research presentation.

**Term Offered:** Spring, Summer, Fall**PHCL 3700 Pharmacology I: Principles of Pharmacology, Autonomic Pharmacology and Related Pharmacology**

[3 credit hours]

An introduction to the principles of pharmacology and the pharmacology of the autonomic nervous system."

**Term Offered:** Fall**PHCL 3720 PHARMACOLOGY II: ENDOCRINE, NSAID AND CARDIOVASCULAR PHARMACOLOGY**

[2 credit hours]

The pharmacology of drugs acting upon the endocrine and reproductive systems will be discussed followed by a discussion of the non-steroidal antiinflammatory agents and the drugs used to treat hypertension and hyperlipidemia.

**Prerequisites:** PHCL 3700 with a minimum grade of C**Corequisites:** MBC 3320, PHPR 3140**Term Offered:** Spring**PHCL 3730 BSPPS Pharmacology II: Endocrine and CNS Pharmacology**

[3 credit hours]

The pharmacology of drugs acting upon the endocrine and reproductive systems as well as for the management of sleep disorders, anxiety, affective illness, schizophrenia and seizure disorders.

**Prerequisites:** PHCL 3700 with a minimum grade of D-**Term Offered:** Spring**PHCL 3810 Pharmacology And Toxicology Laboratory**

[1 credit hour]

The course will teach undergraduate students current methods in pharmacology and toxicology with an emphasis on practical, hands-on experience. Students will learn a variety of techniques commonly used in the pharmaceutical and toxicology industries.

**Prerequisites:** PHCL 3700 with a minimum grade of D-**Term Offered:** Spring**PHCL 4160 Biopharmaceutics & Pharmacokinetics**

[3 credit hours]

This course will provide the theoretical basis and clinical application of pharmacokinetics as relates to drug dosing, absorption, distribution, biotransformation, and excretion.

**Term Offered:** Spring**PHCL 4400 Cannabis Science – Risks & Benefits**

[3 credit hours]

Cannabis Science – Risks and Benefits – delves into the pharmacology, biochemistry, pharmacokinetics, and toxicology of cannabis products. The course will also cover the neuropsychopharmacology of cannabis and the effects of short term and long term uses of cannabis in the central nervous and peripheral systems.

**Term Offered:** Spring, Fall**PHCL 4700 Pharmacology III: Cns And Cardiovascular Pharmacology**

[2 credit hours]

The pharmacology of central nervous system active agents. Continues from PHCL 3720. Agents acting on the cardiovascular and renal systems are also discussed.

**Prerequisites:** PHCL 3700 with a minimum grade of C**Term Offered:** Fall**PHCL 4720 Pharmacology IV: Chemotherapeutic Agents**

[2 credit hours]

The pharmacology of anti-infective chemotherapeutic agents is presented. Issues such as the mechanism of antimicrobial action, disposition, resistance and problems attending the use of antimicrobial drugs will be discussed.

**Prerequisites:** (PHCL 3700 with a minimum grade of C and MBC 3800 with a minimum grade of C)**Term Offered:** Spring**PHCL 4730 Toxicology I**

[3 credit hours]

A synopsis of the basic elements of toxicology including dose-response, lethal dose-50, margin of safety, mechanisms of toxicity and nature of toxic injuries including mutagenesis, carcinogenesis, reproduction, and systemic toxicology. The toxicities of heavy metals and pesticides are also discussed.

**Corequisites:** PHCL 3700**Term Offered:** Fall**PHCL 4750 Toxicology II**

[3 credit hours]

This course provides the students with an overview of environmental toxicology, which emphasizes both air and water pollution. It also reviews the applications of different areas of toxicology, such as food toxicology emphasizing the safety standards of food and methods of evaluation of food safety, analytic toxicology and its applications in forensic toxicology and occupational toxicology. It also discusses general methods for toxicity evaluation.

**Prerequisites:** PHCL 3700 with a minimum grade of D-**Term Offered:** Spring**PHCL 4760 Toxicokinetics**

[3 credit hours]

The theory and practice of using kinetic principles to model the time course of toxic chemicals in the body and in the environment. Relation of the chemical time course to negative outcomes and application to risk assessment. Hands-on practice with kinetic analysis methods and software.

**Term Offered:** Summer, Fall**PHCL 4780 Internship in Pharmacology/Toxicology**

[3-6 credit hours]

In this experiential course, students will acquire practical knowledge through hands-on experience in the area of Pharmacology and / or Toxicology by working at an academic, private, or governmental laboratory or a professional site.

**Prerequisites:** (PHCL 3730 with a minimum grade of D- and PHCL 3810 with a minimum grade of D- and MBC 3320 with a minimum grade of D- and MBC 3552 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall

**PHCL 4810 BSPS Pharmacology III: CNS and Cardiovascular Pharmacology**

[3 credit hours]

The pharmacology of central nervous system active agents and agents acting on the cardiovascular and renal systems.

**Prerequisites:** PHCL 3730 with a minimum grade of D-

**Term Offered:** Fall

**PHCL 4820 BSPS Pharmacology IV: Chemotherapeutic Agents**

[3 credit hours]

The pharmacology of anti-infective chemotherapeutic agents including their mechanism of antimicrobial action, disposition, resistance and issues related to use.

**Prerequisites:** PHCL 4810 with a minimum grade of D-

**Term Offered:** Spring

**PHCL 4900 Honors Seminar In Pharmacology**

[1-3 credit hours]

To examine a specific question in the context of the primary literature in pharmacology and be able to present that in a seminar

**Term Offered:** Spring, Summer, Fall

**PHCL 4910 Problems In Pharmacology**

[1-3 credit hours]

An examination of a specific question in pharmacology which can be answered through application of experimental work.

**Term Offered:** Spring, Summer, Fall

**PHCL 4960 Honors Thesis In Pharmacology**

[2-5 credit hours]

An examination of a specific question in pharmacology which can be answered through application of experimental work, and a presentation in a thesis format.

**Term Offered:** Spring, Summer, Fall

## Pharmacy (PHM)

**PHM 3000 Integrated Pharmaceutical and Clinical Sciences 1**

[6 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, Pharmacokinetics and Pharmacy Practice, to study etiology, pathophysiology, clinical presentation, diagnosis and treatments. The course focuses on clinical laboratory tests and monitoring, hypertension, hyperlipidemia, diabetes and endocrine related disorders.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D-

**Corequisites:** PPHR 3460

**Term Offered:** Spring

**PHM 3100 Cardiology I Hypertension and Hyperlipidemia**

[2 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacy Practice, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of Hypertension and Hyperlipidemia.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D-

**Corequisites:** PPHR 3460

**PHM 3120 Diabetes Endocrine**

[3 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacy Practice, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of Diabetes and Endocrine related disorders.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D-

**Corequisites:** PPHR 3460

**PHM 3700 Career Planning Strategies**

[1 credit hour]

An applied course for which students learn the fundamentals of career exploration, job searching, and professionalism as it pertains to the pharmaceutical sciences industry.

**Term Offered:** Spring, Fall

**PHM 4000 Integrated Pharmaceutical and Clinical Sciences 2**

[8 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, Pharmacokinetics and Pharmacy Practice, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of immunologic disorders, pharmacokinetic considerations and infectious diseases.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PHCL 4160 with a minimum grade of D- and PHM 3000 with a minimum grade of D-

**Corequisites:** PPHR 4350

**Term Offered:** Fall

**PHM 4010 Immunology**

[3 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacotherapeutics, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of immune system and immune based disease and hypersensitivity.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PPHR 3060 with a minimum grade of D-

**Corequisites:** PPHR 4350

**PHM 4030 Infectious Disease**

[4 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacotherapeutics, to study etiology, pathophysiology, clinical presentation, diagnosis and treatment of Infectious Diseases.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PPHR 3060 with a minimum grade of D-

**Corequisites:** PPHR 4350, PPHR 4470

**PHM 4100 Psychiatry and Neurology**

[3 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacy Practice, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of neurologic and psychiatric disorders.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PPHR 3060 with a minimum grade of D-

**Corequisites:** PPHR 4360

**PHM 4120 Pain and Substance Abuse**

[2 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacotherapeutics, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of acute and chronic pain and substance use disorders.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PHPR 3060 with a minimum grade of D-

**Corequisites:** PHPR 4360

**PHM 4140 Hematology**

[1.5 credit hours]

An integrated course that includes Pharmacology and Pharmacotherapeutics, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of Hematologic and related disorders.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PHPR 3060 with a minimum grade of D-

**Corequisites:** PHPR 4360

**PHM 4160 Pulmonary**

[1.5 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacotherapeutics, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of pulmonary diseases.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PHPR 3060 with a minimum grade of D-

**Corequisites:** PHPR 4360

**PHM 4200 Integrated Pharmaceutical and Clinical Sciences 3**

[8 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, Pharmacokinetics and Pharmacy Practice, to study etiology, pathophysiology, clinical presentation, diagnosis, and treatment of pulmonary hematologic, psychiatric, neurologic and pain and substance abuse disorders.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D- and PHM 3000 with a minimum grade of D-

**Corequisites:** PHPR 4360

**Term Offered:** Spring

**PHM 4780 Internship in Drug Discovery and Design**

[3 credit hours]

An experiential course for which students acquire practical knowledge through hands-on experience in an area of pharmaceutical sciences by working in an academic, private, or government laboratory or professional site.

**Term Offered:** Spring, Summer, Fall

## Pharmacy Practice (PHPR)

**PHPR 1000 Orientation**

[1 credit hour]

Lectures and small group discussions include University, Freshman Orientation, FYI subjects, plus introductory elements of Pharmacy professional culture.

**Term Offered:** Fall

**PHPR 2000 Introduction to Pharmacy and Pharmaceutical Sciences**

[1 credit hour]

This course is designed for pre-pharmacy students pursuing a degree in pharmacy or pharmaceutical sciences to connect with the college, explore career opportunities, self-evaluate skills, and career goals, and learn the basics of certain medical terminology, medications, personal care products, and disease states to assist in the understanding and motivation of pharmacy and pharmacy science-based coursework.

**Term Offered:** Fall

**PHPR 2020 Careers in Cosmetic Science**

[1 credit hour]

An introductory course to careers in the cosmetic industry with interactive keynote guest speakers.

**Term Offered:** Spring

**PHPR 2040 Introduction to Cosmetic Science**

[1 credit hour]

An introductory course about the structure of the cosmetic industry, careers, product categories, and regulatory considerations which govern the industry.

**Term Offered:** Spring, Fall

**PHPR 3000 Pharmaceutics and Dosage Form Design**

[5 credit hours]

The lectures and labs in Pharmaceutics and Dosage Form Design have an overarching theme of drug product knowledge. Topics for the lectures and labs include drug product design, pharmaceutical calculations, and an emphasis on contemporary pharmacy compounding.

**Term Offered:** Fall

**PHPR 3010 Pharmaceutical Calculations**

[2 credit hours]

This course is intended to present the principles involved in solving any mathematical problem which may be encountered in the practice of pharmacy-logical thought processes will be used.

**Term Offered:** Fall

**PHPR 3020 Pharmaceutics I**

[3 credit hours]

A lecture introduction to the principles, theory, and processes involved in the manufacture and compounding of fundamental classes of dosage forms.

**Corequisites:** PHPR 3010

**Term Offered:** Fall

**PHPR 3030 Pharmaceutics II**

[3 credit hours]

A continuation of PHPR 3020 as a lecture to the principles, theory, and processes involved in the manufacture and compounding of fundamental classes of dosage forms.

**Prerequisites:** PHPR 3020 with a minimum grade of D- and PHPR 3010 with a minimum grade of D-

**Term Offered:** Spring

**PHPR 3040 Cosmetic Ingredients**

[2 credit hours]

Physicochemical and cosmetic properties, function, and use of the various ingredients used in cosmetics and personal care products. Students learn why these ingredients are present in products and how to select them for a given formulation.

**Prerequisites:** CHEM 1230 with a minimum grade of D- and CHEM 1240 with a minimum grade of D-

**Term Offered:** Spring, Fall

**PHPR 3050 Interprofessional Approach to Patient Care**

[1 credit hour]

This course is designed to prepare all health professions students to deliberately and constructively work together with the common goal of building a safer, better patient-centered and community/population-oriented U.S. health care system. Students will be assigned to small-group interprofessional teams and will interact and collaborate with students from other healthcare professions.

**Term Offered:** Fall

**PHPR 3060 Introduction to Patient Care**

[1 credit hour]

This course will introduce concepts relative to the patient care process and the understanding of the pathophysiology and pharmacotherapy of disease states. The course will discuss commonly used clinical laboratory tests and how to interpret and apply their results to improve patient care, identify patient specific factors that impact medication dosing.

**Prerequisites:** MBC 3310 with a minimum grade of D- and PHCL 3700 with a minimum grade of D-

**Corequisites:** PHPR 3460

**Term Offered:** Spring

**PHPR 3070 Pharmaceuticals and Pharmaceutical Technology I**

[4 credit hours]

Course considers the principles and thought processes involved in solving pharmacy-related mathematical problems and the theory and processes involved in the manufacture and extemporaneous compounding of dosage forms.

**Term Offered:** Fall

**PHPR 3080 PPD-2**

[4 credit hours]

Further exploration of the principles, theory and processes involved in the development and preparation of parenteral, ophthalmic and other non-oral drug delivery systems.

**Term Offered:** Spring

**PHPR 3100 Emulsion Science**

[1 credit hour]

Emulsion and aligned colloidal phenomena is at the core of most cosmetic and personal care formulation technology. This course will provide an overview of emulsion formulation basics including reversible and irreversible formulation changes and emulsion stabilization techniques.

**Prerequisites:** PHPR 3040 with a minimum grade of D-

**PHPR 3110 Pharmaceuticals Lab I**

[1 credit hour]

A laboratory introduction to the principles, theory, and processes involved in the manufacture and compounding of fundamental classes of dosage forms.

**Corequisites:** PHPR 3010, PHPR 3020

**PHPR 3120 Pharmaceuticals Lab II**

[1 credit hour]

A laboratory course that follows PHPR 3110 that introduces principles, theory, and processes involved in the manufacture and compounding of various classes of dosage forms.

**Corequisites:** PHPR 3030

**Term Offered:** Spring

**PHPR 3130 PPT-1**

[2 credit hours]

Discussion of pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of attention deficit hyperactivity disorder, sleep disorders, acid-base, fluid & electrolytic imbalances, pain and substance abuse.

**Corequisites:** MBC 3310, PHCL 3700

**Term Offered:** Fall

**PHPR 3140 PPT-2**

[2 credit hours]

Discussion of pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of endocrine disorders and reproduction.

**Prerequisites:** PHPR 3130 with a minimum grade of C

**Corequisites:** MBC 3320, MBC 3560, PHCL 3720

**Term Offered:** Spring

**PHPR 3150 Essentials of U.S. Healthcare Delivery and Pharmacoeconomic Evaluation**

[2 credit hours]

This course provides an in-depth understanding of the essential components of healthcare delivery in the United States, with a focus on pharmacoeconomic evaluation.

**Term Offered:** Spring

**PHPR 3240 Cosmetic Ingredients Laboratory**

[1 credit hour]

Laboratory introduction to the cosmetic ingredients and active ingredients learned in Cosmetic Ingredients lecture course. Demonstrations and laboratory experiments to prepare students for product formulation courses.

**Corequisites:** PHPR 3040

**Term Offered:** Fall

**PHPR 3250 Introduction to Self Care**

[1 credit hour]

The course will provide an introduction to the over-the-counter marketplace and discussion of the pharmacist's patient care process. Special emphasis will be placed on how pharmacists should help patients safely and effectively treat common medical problems.

**Prerequisites:** PHPR 3450 with a minimum grade of D- and PHCL 3700 with a minimum grade of D-

**Corequisites:** PHPR 3460

**Term Offered:** Spring

**PHPR 3260 PHCAD-1**

[2 credit hours]

Description and analysis of the organization, financing and delivery of healthcare in the U.S.. Development of communication skills for pharmacists to function optimally in the system is emphasized.

**Term Offered:** Spring, Fall**PHPR 3300 Commonly Prescribed Meds and Med Term 1**

[1 credit hour]

This course introduces students to commonly prescribed medications and medical terminology.

**Term Offered:** Fall**PHPR 3310 Introduction to Pharmacy Law**

[1 credit hour]

The purpose of this course is to introduce students to laws that regulate the practice of pharmacy. Federal drug laws and specific state laws that regulate the filling and dispensing of prescriptions will be reviewed and applied.

**Term Offered:** Spring**PHPR 3450 Pharmacy Skills Development-1**

[2 credit hours]

This course is designed to introduce students to the Pharmacists' Patient Care Process as it is applied to the Community Pharmacy Setting in order to prepare them for their Community Pharmacy Introductory Pharmacy Practice Experiences.

**Term Offered:** Fall**PHPR 3460 Pharmacy Skills Development-2**

[2 credit hours]

Building on competencies from prerequisite courses, this course is designed to enhance skills in the Pharmacists' Patient Care Process (PPCP) as they are applied to the Community Pharmacy Setting.

**Prerequisites:** PHPR 3450 with a minimum grade of D- or PHPR 5450 with a minimum grade of D-

**Term Offered:** Spring**PHPR 3470 Pharmacokinetics**

[3 credit hours]

This course will provide the theoretical basis and clinical application of pharmacokinetics as relates to drug dosing, absorption, distribution, biotransformation and excretion.

**PHPR 3500 Cosmetic Laws and Regulations**

[1 credit hour]

Overview of the United States cosmetic laws and regulations, legal definitions, and product safety will be taught. Topics will include how cosmetics are regulated in the US, labeling requirements, product compliance and safety concerns. Knowledge to market cosmetic products with regulatory compliance in the US will be provided.

**Prerequisites:** PHPR 3040 (may be taken concurrently) with a minimum grade of D-

**Term Offered:** Fall**PHPR 3600 The Science of Color in Cosmetics**

[1 credit hour]

An in-depth course, which gives students a full overview and understanding of color vision, dimensions of color description and measurement scales. The chemistry and structure of color additives used in cosmetics and personal care products will be covered along with a comprehensive review of regulations and their history in the US. The course will also introduce formulating and manufacturing concepts that students need to consider when working with colors. A group project will be required and will be presented to the entire class.

**Prerequisites:** PHPR 3040 with a minimum grade of D-

**Term Offered:** Spring**PHPR 3620 Cosmetic and Fragrance Product Development**

[1 credit hour]

An in-depth course aimed at giving students a full overview and understanding of the product development process to create cosmetic and fragrance products. Students will learn the necessary strategies and tools, as well as implement them to create a new product in a workshop format. The class will focus on topics such as ideation, competitive and market analysis, development, and the interdepartmental teamwork required to successfully launch a product. A group project will be required and will be presented to the entire class.

**Corequisites:** PHPR 3040

**Term Offered:** Fall**PHPR 3920 Introductory Pharmacy Practice Experience I**

[1 credit hour]

First professional year course designed to enhance professional growth through an introduction to clinical skill development and direct patient care activities within institutional and community pharmacy practice settings. Prerequisite: Admission into the Pharm.D. Program.

**Term Offered:** Spring, Summer, Fall**PHPR 3930 Introductory Pharmacy Practice Experience 2**

[1 credit hour]

First professional year course designed to enhance professional growth through an introduction to clinical skill development and direct patient care activities within institutional and community pharmacy practice settings. Prerequisite: Admission into the Pharm.D Program.

**Prerequisites:** PHPR 3920 with a minimum grade of C or PHPR 5920 with a minimum grade of C

**Term Offered:** Spring**PHPR 4050 Pharmacy Skills Development-3**

[2 credit hours]

This course will enhance skills in interpersonal communication with emphasis on application of one-to-one communication and patient counseling. Also includes the development of skills in the delivery of immunizations and medication therapy management (MTM).

**Prerequisites:** PHPR 3460 with a minimum grade of D-

**PHPR 4070 PPD-3**

[3 credit hours]

Interpersonal communication with emphasis upon application of one-to-one communication and patient counseling. Instruction in the broad dimension of professional pharmacy practice and responsibility for providing pharmaceutical care, and use of drug information resources, and provision of drug information.

**Prerequisites:** PHPR 3070 with a minimum grade of C

**Term Offered:** Fall



**PHPR 4080 PPD-4**

[3 credit hours]

Course enhances professional development to meet specific patient and health care practitioner needs. Instruction includes effective literature analysis, presentation of care plans, and pharmacy jurisprudence.

**Prerequisites:** PHPR 4070 with a minimum grade of C

**Corequisites:** PHPR 4140, PHPR 4330

**Term Offered:** Spring

**PHPR 4130 PPT-3**

[4 credit hours]

Discussion of pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of immune, renal and rheumatologic disorders and transplantation.

**Prerequisites:** PHPR 3140 with a minimum grade of C and MBC 3800 with a minimum grade of C

**Corequisites:** PHCL 4700

**Term Offered:** Fall

**PHPR 4140 PPT-4**

[4 credit hours]

Discussion of pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of immunology and infectious diseases

**Prerequisites:** MBC 3800 with a minimum grade of C

**Corequisites:** MBC 4300, PHCL 4720

**Term Offered:** Spring

**PHPR 4160 Pharmacokinetics**

[3 credit hours]

Theoretical basis and clinical application of pharmacokinetics as relates to drug dosing, absorption, distribution, biotransformation, and excretion.

**Term Offered:** Spring, Fall

**PHPR 4220 Patient Centered Care**

[2 credit hours]

This course focuses on learning various aspects of Patient Centered Care including: Medication Therapy Management (MTM) services, Motivational Interviewing, Patient Assessment, and Cultural Competence.

**Corequisites:** PHPR 4350

**Term Offered:** Fall

**PHPR 4270 Health Systems**

[1.5 credit hours]

This course will provide an overview of the organization, financing and delivery of healthcare in the U.S.

**Term Offered:** Spring

**PHPR 4300 Commonly Prescribed Meds and Med Term II**

[1 credit hour]

This course introduces students to commonly prescribed medications and medical terminology.

**Prerequisites:** PHPR 3300 with a minimum grade of D-

**Corequisites:** PHPR 4350

**Term Offered:** Fall

**PHPR 4330 RESEARCH DESIGN AND DRUG LITERATURE EVALUATION 1**

[2 credit hours]

Concepts of research design, statistical analysis, literature evaluation and evidence based medicine are introduced and integrated in a manner that depicts their practical relevance to pharmacy practice.

**Corequisites:** PHPR 4080

**Term Offered:** Spring

**PHPR 4350 Pharmacy Skills Development - 3**

[2 credit hours]

Building on competencies from prerequisite courses, this course is designed to enhance skills in the Pharmacists' Patient Care Process (PPCP) as they are applied to the Community and Ambulatory Care Pharmacy settings.

**Prerequisites:** PHPR 3460 with a minimum grade of D-

**Corequisites:** PHPR 4220

**Term Offered:** Fall

**PHPR 4360 Pharmacy Skills Development - 4**

[2 credit hours]

Building on competencies from prerequisite courses, this course is designed to enhance skills in the Pharmacists' Patient Care Process (PPCP) as they are applied to the Institutional Pharmacy setting.

**Prerequisites:** PHPR 4350 with a minimum grade of D- and PHPR 4530 with a minimum grade of D- or PHPR 6540 with a minimum grade of D-

and PHPR 6350 with a minimum grade of D-

**Term Offered:** Spring

**PHPR 4470 Applied Clinical Pharmacokinetics Primer**

[1 credit hour]

This course is a discussion of pharmacokinetic concepts which are commonly utilized in therapeutic drug monitoring and clinical application.

**Prerequisites:** PHPR 3470 with a minimum grade of D-

**Corequisites:** PHM 4030

**PHPR 4520 PHCAD-2**

[2 credit hours]

This course is to introduce students to the administrative sciences (marketing/management, etc.) and their respective roles in the provision of pharmaceutical care.

**Prerequisites:** PHPR 3260 with a minimum grade of C

**Term Offered:** Spring

**PHPR 4530 Evidence Based Medicine 1**

[3 credit hours]

This course introduces the principles and practice of evidence based medicine (EBM) in guiding clinical decision making in pharmacy practice.

**Prerequisites:** MATH 2640 with a minimum grade of D- or MATH 2600 with a minimum grade of D-

**Term Offered:** Fall

**PHPR 4540 Evidence Based Medicine 2**

[2 credit hours]

This course expands upon the principles and practice of evidence based medicine (EBM) in guiding clinical decision making in pharmacy practice. Students will develop their formal oral presentation skills.

**Prerequisites:** PHPR 4530 with a minimum grade of D-

**Corequisites:** PHPR 4360

**Term Offered:** Spring

**PHPR 4550 Analysis Of The Pharmaceutical Environment**

[3 credit hours]

A theoretical and practical examination of the pharmaceutical environment and drug distribution system using the science of marketing as a tool for analysis.

**Term Offered:** Spring

**PHPR 4600 Seminar in Pharmacy Administration**

[1 credit hour]

This course provides a global perspective on pharmacy administration and healthcare related issues, including economic, humanistic, clinical, and other aspects of disease management. Prerequisite: Enrollment in the BSPS in Pharmacy Administration program or permission of instructor

**Term Offered:** Fall**PHPR 4730 Cosmetic Science I**

[3 credit hours]

A detailed discussion of cosmetics and personal care products. Main discussion points include product functions, ingredient selection, product design and formulation, product testing, and regulatory requirements.

Guest speakers from the cosmetic and personal care industry are regularly invited to the classes.

**Prerequisites:** PHPR 3040 with a minimum grade of D-**Term Offered:** Spring**PHPR 4740 Cosmetic Science Laboratory I**

[1 credit hour]

A laboratory course that focuses on cosmetic and personal care product formulation and testing basics. This laboratory supplements the Cosmetic Science 1 lecture course.

**Prerequisites:** PHPR 3240 (may be taken concurrently) with a minimum grade of D-**Term Offered:** Spring, Fall**PHPR 4750 Cosmetic Science II**

[3 credit hours]

A continuation of PHPR 4730 Cosmetic Science I. A detailed discussion of cosmetics and personal care products. Main discussion points include product functions, ingredient selection, product design and formulation, product testing, and regulatory requirements. Guest speakers from the cosmetic and personal care industry are regularly invited to the classes.

**Prerequisites:** PHPR 4730 with a minimum grade of D-**Term Offered:** Spring, Fall**PHPR 4760 Cosmetic Science Laboratory II**

[1 credit hour]

A laboratory course that focuses on cosmetic and personal care product formulation and testing basics. This laboratory supplements the Cosmetic Science 2 lecture course.

**Prerequisites:** PHPR 4730 with a minimum grade of D- and PHPR 4740 with a minimum grade of D-**Term Offered:** Fall**PHPR 4770 Advanced Drug Delivery Systems – I**

[3 credit hours]

The development of drug delivery systems relies on the broad understanding of many different physiological, chemical, and biological factors. This course is designed to introduce advanced drug delivery systems for oral, ocular, transdermal and buccal delivery. The course design is based on the premise that the student desires knowledge about the latest developments in formulation and drug delivery. Students may be required to design a project proposal for presentation.

**Term Offered:** Spring, Fall**PHPR 4780 Internship In Pharmacy Administration**

[3-6 credit hours]

An experiential course in which students acquire practical knowledge through hands-on experience in an area of pharmacy administration by working in an academic or non-academic (private business) environment.

**Term Offered:** Spring, Summer, Fall**PHPR 4820 Advanced Formulation Techniques**

[1 credit hour]

An advanced laboratory course in cosmetics and personal care products with an emphasis on specialty and active raw material formulation design techniques, new and emerging product development formulations, and quality control testing methods.

**Prerequisites:** PHPR 4760 with a minimum grade of D-**Term Offered:** Spring**PHPR 4880 Internship in Pharmaceutics**

[3-6 credit hours]

Students will acquire practical knowledge and hands-on experience in the areas of pharmacy administration or industrial pharmacy/pharmaceutics by working in the pharmaceutical industry or with health care systems.

**Term Offered:** Spring, Summer, Fall**PHPR 4890 Internship in Cosmetic Science and Formulation Design**

[3-6 credit hours]

An experiential course in which students acquire practical knowledge through hands-on experience in an area of cosmetic science by working in an academic, private or government laboratory or professional site.

**Term Offered:** Spring, Summer, Fall**PHPR 4900 Honors Seminar In Pharmacy Practice**

[1-3 credit hours]

An examination of a specific question in the context of the primary literature in pharmacy practice for advanced students.

**Term Offered:** Spring, Summer, Fall**PHPR 4910 Pharmacy Practice Problems**

[1-5 credit hours]

Selected undergraduate research projects in pharmacy practice.

**Term Offered:** Spring, Summer, Fall**PHPR 4920 Introductory Pharmacy Practice Experience 3**

[1 credit hour]

The purpose of this course is to increase students' awareness and involvement in areas related to the contemporary practice of pharmacy. Students will participate in projects that nurture their professional growth.

**Prerequisites:** PHPR 3930 with a minimum grade of C or PHPR 5930 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**PHPR 4930 Introductory Pharmacy Practice Experience 4**

[1 credit hour]

The purpose of this course is to increase students' awareness and involvement in areas related to the contemporary practice of pharmacy. Students will participate in projects that nurture their professional growth.

**Prerequisites:** PHPR 4920 with a minimum grade of C or PHPR 6930 with a minimum grade of D-**Term Offered:** Spring, Summer

**PHPR 4940 Skin Care Science**

[1 credit hour]

Overview of the skin physiology, product development process, and products claims will be taught. Topics will include skin dryness, fine lines/wrinkles, and skin pigmentation concerns. Knowledge to develop skincare products from idea generation, ingredient selection to finished products will be provided.

**Prerequisites:** PHPR 3040 with a minimum grade of D-**Term Offered:** Spring**PHPR 4960 Honors Thesis In Pharmacy Practice**

[2-5 credit hours]

An examination of a specific research question in pharmacy practice which can be answered through application of experimental work.

**Term Offered:** Spring, Summer, Fall

## Philosophy (PHIL)

**PHIL 1010 Introduction To Logic**

[0-3 credit hours]

(not for major credit) An introduction to the symbolic analysis of argument components and structures. Topics include definition, syllogistic reasoning, semantics, sentential logic and probability.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**PHIL 1020 Critical Thinking**

[0-3 credit hours]

(not for major credit) A study of principles and patterns of good reasoning and writing, including the evaluation and construction of arguments and the identification and avoidance of fallacies.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**PHIL 2000 World Philosophies**

[3 credit hours]

Introduction to comparative analysis and interpretation of major themes, methods, and figures in philosophical traditions of Africa, Asia, and the Americas. Topics may include knowledge and wisdom, the relationship between self and world, ethics and the good life, and politics.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity

**PHIL 2200 Introduction To Philosophy**

[3 credit hours]

An introduction to philosophical reflection on such issues as the existence of God, free will, knowledge and objectivity, social justice and moral responsibility. Humanities core course.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**PHIL 2400 Contemporary Moral Problems**

[3 credit hours]

A study of topics such as abortion, euthanasia, environmental responsibility, famine relief, affirmative action and sexuality. Attention is paid to moral argument and the bases of moral decisions.

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, OT36 Arts and Humanities

**PHIL 3000 Symbolic Logic**

[3 credit hours]

A study of propositional and predicate logic, techniques used to evaluate deductive arguments. Topics may include computability, set theory, Bayesianism and other formal systems with philosophical and mathematical relevance.

**Term Offered:** Spring, Fall**PHIL 3060 Philosophy Of Language**

[3 credit hours]

A historical and critical examination of topics in the philosophy of language such as truth, reference, representation, metaphor and interpretation.

**Term Offered:** Fall**PHIL 3120 Business Ethics**

[3 credit hours]

An examination of the ethical dimensions of the relationships between a business and employees, consumers, other businesses, society, government, the law and the environment.

**Term Offered:** Spring, Summer, Fall**PHIL 3140 Computers And Culture**

[3 credit hours]

A study of the philosophical issues computers raise which affect and reflect human values. Topics include censorship and privacy on the internet, virtual reality and the possibility of artificial intelligence.

**Term Offered:** Spring, Fall**PHIL 3160 Data Science Ethics**

[3 credit hours]

A course which covers ethical and social implications of big data science and management. Topics include big data research ethics, privacy, identity, healthcare, and social justice.

**Term Offered:** Spring, Fall**PHIL 3180 Environmental Ethics**

[3 credit hours]

An examination of our relation and responsibility to the natural environment. Topics include risk assessment, the value of non-human living things, resource use, economics, technology, environmental racism and ecology.

**Term Offered:** Spring, Summer, Fall**PHIL 3210 Ancient And Medieval Philosophy**

[3 credit hours]

A study of ancient and medieval philosophy from the pre-Socratics to Aquinas.

**Term Offered:** Fall**PHIL 3230 Modern Philosophy**

[3 credit hours]

A study of early modern philosophy from Descartes to Kant. Writing intensive course.

**Term Offered:** Spring, Fall**PHIL 3240 Existentialism**

[3 credit hours]

An examination of existentialist philosophy from the 19th Century to the present as represented in the works of Kierkegaard, Nietzsche, Heidegger, Camus, Sartre, de Beauvoir, Fanon and others. Topics may include anxiety, meaning and meaninglessness, freedom, and community.

**Term Offered:** Spring, Fall

**PHIL 3310 Science And Society**

[3 credit hours]

A study of twentieth-century science and its relationships with government, industry, religion and medicine, including the emergence of Big Science and the future of science education and research.

**Term Offered:** Spring**PHIL 3370 Medical Ethics**

[3 credit hours]

The application of ethics to the practice of medical professionals. Topics include authority, paternalism, truth-telling, informed consent, health care reform, genetic manipulation, abortion, infanticide and euthanasia.

**Term Offered:** Spring, Summer, Fall**PHIL 3500 Eastern Thought**

[3 credit hours]

An examination of major philosophies of Asia and the Far East, their specific concerns and their relevance to contemporary problems.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**PHIL 3540 Feminism And Philosophy: Love, Sex and Marriage**

[3 credit hours]

This course examines a number of cross-cultural philosophical conceptions of love, sex, and marriage, comparing historical and contemporary beliefs and practices in relation to gender/feminist and ethical theory. A number of philosophical and ethical issues, such as monogamy, cultural and theological contexts, pornography, marriage rights, and consent, will be investigated through readings, videos, and discussion boards, which are meant to encourage students to explore diverse viewpoints, analyze arguments, and cultivate a deeper critical awareness of their own and others' viewpoints.

**Term Offered:** Spring, Summer

Multicultural US Diversity

**PHIL 3560 Aesthetics**

[3 credit hours]

An analysis and evaluation of aesthetic topics such as the definition of art, truth in the arts, the role of representation, the nature of aesthetic value and the character of aesthetic experience.

**Term Offered:** Spring, Fall**PHIL 3570 Philosophy Of Religion**

[3 credit hours]

A critical, philosophical exploration of questions about the nature of religion, including the existence and nature of God, the problem of evil, and the relation between faith and knowledge. Other topics may include the relation of religion to science and morality, as well as the role of religious experience and miracles in religious belief.

**Term Offered:** Spring, Fall**PHIL 3630 Philosophy Of Psychology**

[3 credit hours]

A philosophical examination of problems concerning the nature of mind such as the relation between mind and body, consciousness, free will and personal identity.

**Term Offered:** Fall**PHIL 3710 Philosophy Of Law**

[3 credit hours]

A study of philosophical issues raised by law such as the foundations of the law, relation of law to morality, obligation to obey the law, the nature of rights, and approaches to legal interpretation.

**Term Offered:** Spring, Summer, Fall**PHIL 3750 Social And Political Philosophy**

[3 credit hours]

A study of classic and contemporary treatments of justice, authority, the relations between individual and community, the meaning of freedom and equality, power and violence, and race and gender.

**Term Offered:** Spring, Fall**PHIL 3760 Crime And Punishment**

[3 credit hours]

A philosophical study of topics such as crime, responsibility, justice and punishment. Special attention is paid to current practices in the criminal justice system.

**Term Offered:** Spring, Fall**PHIL 3900 Seminar**

[3 credit hours]

Topics vary.

**Term Offered:** Spring, Fall**PHIL 4010 Islamic Law and Society**

[3 credit hours]

This course will survey Islamic law in historical and comparative modern contexts. This course will provide (a) basic introduction to the sources and methods of classical Islamic legal interpretation, (b) survey of the most pressing areas in which traditional Islamic norms remain relevant today—criminal law, family law, and commercial law, (c) the challenges and transformations introduced by colonialism, modernity, and the nation-state, and (d) comparison with the American law and the constitution, highlighting comparative interpretive methods such as originalism versus progressivism, and innovative dimensions of Islamic law such as legal pluralism, wide room for local custom, religious diversity, and restorative justice.

**Term Offered:** Spring**PHIL 4210 Ancient Philosophy Seminar**

[3 credit hours]

An intensive study of the texts and arguments of Presocratic philosophers, Plato, Aristotle, or Hellenistic philosophers. Course may be repeated as topics vary.

**Term Offered:** Spring, Fall**PHIL 4230 Modern Philosophy Seminar**

[3 credit hours]

An intensive study of one or more Continental or British philosophers from the sixteenth through eighteenth centuries. Course may be repeated as topics vary.

**Term Offered:** Spring, Fall**PHIL 4240 19th Century European Philosophy**

[3 credit hours]

An intensive study of European philosophy after Kant, including Hegel, Marx, Kierkegaard and Nietzsche.

**Term Offered:** Spring, Fall

**PHIL 4250 Phenomenology**

[3 credit hours]

An intensive study of major works from phenomenological philosophers, such as Husserl, Heidegger, Sartre, or Merleau-Ponty. Course may be repeated as topics vary.

**Term Offered:** Spring, Fall**PHIL 4260 Recent European Philosophy**

[3 credit hours]

An examination of texts and problems in the Frankfurt school, post-structuralism, deconstruction and post-modernism, or of such thinkers as Habermas, Foucault, Derrida and Lyotard. Course may be repeated as topics vary.

**Term Offered:** Spring, Fall**PHIL 4270 American Philosophy**

[3 credit hours]

A study of the development of American Philosophy, or one or more of Pierce, James, Dewey, or Mead. Course may be repeated as topics vary.

**Term Offered:** Fall**PHIL 4280 20th Century Analytic Philosophy**

[3 credit hours]

Selected readings from Frege, Russell, Wittgenstein, the Vienna Circle, the Ordinary Language school, and American neo-pragmatists such as Quine, Rorty and Davidson. Course may be repeated as topics vary.

**Term Offered:** Spring, Fall**PHIL 4300 Philosophy Of Natural Science**

[3 credit hours]

A study of scientific inquiry including the structure of scientific explanations, relations of evidence and confirmation, the metaphysics of theoretical entities, and the nature of scientific change and progress.

**Term Offered:** Spring, Fall**PHIL 4400 Ethics Seminar**

[3 credit hours]

Selected topics or philosophers in ethical theory. Course may be repeated as topics vary.

**Term Offered:** Spring**PHIL 4650 Philosophy Of Mind**

[3 credit hours]

Advanced study of issues in the philosophy of mind such as: intentionality and misrepresentation, rationality and interpretation, supervenience and reductionism, folk psychology and eliminative materialism. Course may be repeated as topics vary.

**Term Offered:** Spring**PHIL 4750 Political Philosophy Seminar**

[3 credit hours]

Selected topics or philosophers in political philosophy. Course may be repeated as topics vary.

**Term Offered:** Spring, Fall**PHIL 4900 Advanced Seminar**

[2-4 credit hours]

Topics vary.

**Term Offered:** Spring, Fall**PHIL 4920 Directed Readings**

[1-4 credit hours]

**PHIL 4990 Independent Study - Honors**

[3 credit hours]

## Physics (PHYS)

**PHYS 1100 Our Physical World - Matter & Energy**

[3 credit hours]

Elementary study of motion and gravity, thermodynamics, wave phenomena, light, electricity, magnetism, models of the atom, the solar system, stars and galaxies.

**Term Offered:** Fall

Core Natural Sciences

**PHYS 1110 Physical World Laboratory**

[1 credit hour]

Quantitative measurements and predictions concerning the physical universe in a laboratory environment. Motion, electric and magnetic fields, properties of matter, temperature and heat, radioactive decay. Two hours of laboratory per week.

**Corequisites:** PHYS 1100**Term Offered:** Fall

Core Natural Sciences

**PHYS 1300 Physics In Everyday Life**

[3 credit hours]

Not for major credit. Selected subjects of current interest, with their relation to the principles and concepts of physics. Content may vary from year to year. No special science or mathematics background needed.

**Term Offered:** Fall

Core Natural Sciences

**PHYS 1320 Jurassic Physics**

[3 credit hours]

Not for major credit. Mechanics, energy, sound and thermodynamics of dinosaurs. The physics of vision and hearing. Fluids and flight. Radioactivity. Climate and the effects of an asteroid collision with the Earth.

**Term Offered:** Spring

Core Natural Sciences

**PHYS 1750 Introduction To Physics**

[4 credit hours]

Not for major credit. High school mathematics including plane geometry, trigonometry and two years of algebra is strongly recommended.

Fundamental laws of nature pertaining to mechanics, thermodynamics, waves, electricity, magnetism, optics, atoms and particles.

**Term Offered:** Fall

Core Natural Sciences, OT36 Natural Science

**PHYS 1910 Frontiers Of Physics And Astronomy**

[3 credit hours]

An examination of our current understanding of the physical world at the conceptual level. Topics may include the ultimate structure of matter, quantum theory, relativity, astrophysics, cosmology and contemporary applications.

**Term Offered:** Fall

**PHYS 2070 General Physics I**

[4 credit hours]

Algebra based general physics. Calculus not required. Mechanics of energy and motion, gravitation, harmonic motion, fluids, heat, entropy and the laws of thermodynamics. Four hours of lecture.

**Prerequisites:** (MATH 1320 with a minimum grade of D- and MATH 1330 with a minimum grade of D-) or MATH 1340 with a minimum grade of D- or MATH 1750 with a minimum grade of D- or MATH 1850 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**PHYS 2075 General Physics I - Lab**

[1 credit hour]

Laboratory component for PHYS 2070. Algebra-based general physics labs associated with mechanics of energy and motion, gravitation, harmonic motion, fluids, heat, entropy and the laws of thermodynamics. Two hours of lab.

**Prerequisites:** (MATH 1320 with a minimum grade of D- and MATH 1330 with a minimum grade of D-) or MATH 1340 with a minimum grade of D- or MATH 1750 with a minimum grade of D- or MATH 1850 with a minimum grade of D-

**Corequisites:** PHYS 2070

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

**PHYS 2080 General Physics II**

[4 credit hours]

Algebra based general physics. Calculus not required. Electricity and magnetism, capacitors and inductors, electromagnetic waves, optics, atomic physics, nuclear physics, and elementary particles. Four hours of lecture.

**Prerequisites:** PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**PHYS 2085 General Physics II - Lab**

[1 credit hour]

Laboratory component for PHYS 2080. Algebra-based general physics labs associated with electricity and magnetism, capacitors and inductors, electromagnetic waves, optics, and atomic physics. Two hours of lab.

**Prerequisites:** PHYS 2070 with a minimum grade of D- and PHYS 2075 with a minimum grade of C

**Corequisites:** PHYS 2080

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

**PHYS 2100 Physics With Calculus**

[2 credit hours]

A bridge course for students wishing to continue in physics after taking PHYS 2070-2080. The application of calculus and elementary differential equations in various physical contexts. No credit for students who take PHYS 2130-2140.

**Prerequisites:** (PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and MATH 1860 with a minimum grade of D-) or (PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and MATH 1840 with a minimum grade of D-) or (PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and MATH 1880 with a minimum grade of D-) or (PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and MATH 1930 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**PHYS 2130 Physics For Science And Engineering Majors I**

[4 credit hours]

Calculus based general physics. Mechanics of motion and energy, rotation, gravitation, harmonic motion, waves, fluids and the laws of thermodynamics. Four hours of lecture.

**Prerequisites:** MATH 1830 (may be taken concurrently) with a minimum grade of C or MATH 1850 (may be taken concurrently) with a minimum grade of C or MATH 1920 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**PHYS 2135 Physics for Science and Engineering Majors I - Lab**

[1 credit hour]

Laboratory component of PHYS 2130. Calculus based general physics labs associated with mechanics of motion and energy, rotation, gravitation, harmonic motion, waves, fluids and the laws of thermodynamics. Two hours of lab.

**Prerequisites:** MATH 1830 (may be taken concurrently) with a minimum grade of C or MATH 1850 (may be taken concurrently) with a minimum grade of C or MATH 1920 (may be taken concurrently) with a minimum grade of C

**Corequisites:** PHYS 2130

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

**PHYS 2140 Physics For Science And Engineering Majors II**

[4 credit hours]

Calculus based general physics. Electricity and magnetism, capacitors and inductors, electromagnetic oscillations, Maxwell's equations and electromagnetic radiation, optics, images, interference, and diffraction. Four hours of lecture.

**Prerequisites:** PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences, OT36 Natural Science

**PHYS 2145 Physics for Science and Engineering Majors II - Lab**

[1 credit hour]

Laboratory component for PHYS 2140. Calculus based general physics labs associated with electricity and magnetism, capacitors and inductors, electromagnetic oscillations, Maxwell's equations and electromagnetic radiation, optics, images, interference, and diffraction. Two hours of lab.

**Prerequisites:** PHYS 2130 with a minimum grade of D- and PHYS 2135 with a minimum grade of C

**Corequisites:** PHYS 2140

**Term Offered:** Spring, Summer, Fall

Core Natural Sciences

**PHYS 3180 Intermediate Laboratory**

[3 credit hours]

Physical measurements laboratory related to the development of modern physics, emphasizing techniques such as electronics, computer-aided experimental control and data acquisition, and data analysis. May be offered as writing intensive.

**Prerequisites:** PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- or PHYS 2100 with a minimum grade of D-

**Term Offered:** Spring

**PHYS 3310 Modern Physics I**

[3 credit hours]

Quantum mechanics: atomic and molecular structure and spectra.

**Prerequisites:** (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 1840 with a minimum grade of D-) or (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 1860 with a minimum grade of D-) or (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 1880 with a minimum grade of D-) or (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 1930 with a minimum grade of D-)

**Term Offered:** Fall

**PHYS 3400 Physical Principles Of Energy Sources For Humans**

[3 credit hours]

This course will involve the study of various conventional and unconventional sources of energy for human consumption. Past, present, and future energy sources will be examined on scientifically established principles and data.

**Prerequisites:** PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- or PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and CHEM 1240 with a minimum grade of D-

**Term Offered:** Spring

**PHYS 3410 Thermal Physics**

[3 credit hours]

Statistical mechanics, kinetic theory and thermodynamics from a unified microscopic point of view, with applications to a variety of topics from different areas of physics.

**Prerequisites:** PHYS 3310 with a minimum grade of D-

**Term Offered:** Spring

**PHYS 3610 Optics And Lasers**

[3 credit hours]

Electromagnetic theory, ray and wave optics including matrix methods, polarization, interference, diffraction, basic laser physics and survey of current laser systems.

**Prerequisites:** PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-

**Term Offered:** Spring, Fall

**PHYS 4130 Computational Physics**

[3 credit hours]

Working knowledge of computer operations and programming required. Numerical accuracy, advanced programming, graphics and spreadsheet packages, numerical techniques for differentiation, integration, matrices, solving differential equations and eigenvalue problems.

**Prerequisites:** (MATH 1830 with a minimum grade of D- or MATH 1850 with a minimum grade of D-) and (MATH 1840 with a minimum grade of D- or MATH 1860 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**PHYS 4210 Theoretical Mechanics**

[3 credit hours]

Statics and dynamics of particles, work, energy, Lagrange equations of motion, small oscillations, dynamics of rigid bodies.

**Prerequisites:** (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 1890 with a minimum grade of D- and MATH 2860 with a minimum grade of D-) or (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 2890 with a minimum grade of D- and MATH 2860 with a minimum grade of D-)

**Term Offered:** Fall

**PHYS 4230 Electricity And Magnetism I**

[3 credit hours]

Mathematical formulation of electrostatic and magnetostatic fields, potential theory solution of boundary value problems, method of images, dielectric and magnetic materials.

**Prerequisites:** (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 1890 with a minimum grade of D- and MATH 2860 with a minimum grade of D-) or (PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D- and MATH 2890 with a minimum grade of D- and MATH 2860 with a minimum grade of D-)

**Term Offered:** Fall

**PHYS 4240 Electricity And Magnetism II**

[3 credit hours]

Maxwell's field equations, production and propagation of electromagnetic waves, solution of boundary value problems with application to the laws of optics and guided waves.

**Prerequisites:** PHYS 4230 with a minimum grade of D-

**Term Offered:** Spring

**PHYS 4310 Quantum Mechanics**

[3 credit hours]

Formalism and applications of quantum mechanics: Hilbert space, time-independent and time-dependent perturbation theories, atomic and molecular structure and spectra, and scattering theory.

**Prerequisites:** (PHYS 3310 with a minimum grade of D- and MATH 2860 with a minimum grade of D- and MATH 1890 with a minimum grade of D-) or (PHYS 3320 with a minimum grade of D- and MATH 2890 with a minimum grade of D-)

**Term Offered:** Spring**PHYS 4400 Principles and Varieties of Solar Energy**

[3 credit hours]

Types and extent of solar energy used in human society including photosynthesis, photovoltaic, solar thermal, and concentrating solar electric; scope of the necessary energy storage and long distance electricity transmission.

**Prerequisites:** CHEM 1240 with a minimum grade of D- and PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- and PHYS 3400 with a minimum grade of D-

**Term Offered:** Spring**PHYS 4430 Medical Physics I**

[3 credit hours]

This course provides an overview of the physical principles and instrumentation of the major medical imaging modalities including projection radiography, and computed tomography. In addition the course will present a general prospective on use of radiation in cancer treatment including discussions on basic conventional radiotherapy, advanced image guided radiotherapy and treatment planning. This is a companion course to PHYS 4440.

**Prerequisites:** (PHYS 2080 with a minimum grade of D- and PHYS 2085 with a minimum grade of D- or PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-) and (MATH 1760 with a minimum grade of D- or MATH 1840 with a minimum grade of D- or MATH 1860 with a minimum grade of D-)

**Term Offered:** Fall**PHYS 4440 Medical Physics II**

[3 credit hours]

This is the second part of a two-semester Medical Physics course. The course provides an overview of the physical principles and instrumentation of the major medical imaging modalities including projection radiography, and computed tomography. In addition the course will present a general prospective on use of radiation in cancer treatment including discussions on basic conventional radiotherapy, advanced image guided radiotherapy and treatment planning. Prerequisite: PHYS 4430.

**Prerequisites:** PHYS 4430 with a minimum grade of D-

**Term Offered:** Spring**PHYS 4510 Physics Of Condensed Matter**

[3 credit hours]

Crystal lattices and structures, reciprocal lattice and kinematical diffraction theory, binding in crystals, lattice dynamics and phonons, thermodynamic, electronic, and optical properties of insulators, semiconductors, metals and alloys.

**Prerequisites:** (PHYS 3310 with a minimum grade of D- and PHYS 3410 with a minimum grade of D-)

**Term Offered:** Spring, Fall**PHYS 4580 Molecular And Condensed Matter Laboratory**

[3 credit hours]

Experiments in molecular and condensed matter physics. Measurements and analysis based on techniques such as film thickness and surface morphology, X-ray diffraction, optical absorption, four-point probe and Hall measurements. One four-hour lab and one-hour lecture per week. May be offered as writing intensive.

**Prerequisites:** PHYS 3310 with a minimum grade of D-

**Term Offered:** Fall**PHYS 4630 Semiconductors 1**

[3 credit hours]

Review of modern theory of solids. Semiconducting and metallic materials. Semiconductor devices including p-n junctions and solar cells.

**Prerequisites:** PHYS 2140 with a minimum grade of D- and PHYS 2145 with a minimum grade of D-

**Term Offered:** Spring**PHYS 4780 Atomic And Nuclear Physics Laboratory**

[3 credit hours]

Detectors and electronics, gamma-ray and X-ray spectroscopies, beta and alpha particle spectroscopies, nuclear magnetic resonance, grating and interferometric spectroscopy, laser applications, and solar atomic spectroscopy. One four-hour lab and one-hour lecture per week. May be offered as writing intensive.

**Prerequisites:** PHYS 3310 with a minimum grade of D-

**Term Offered:** Spring**PHYS 4910 Research Problems-Physics And Astronomy**

[1-3 credit hours]

Individual experimental or theoretical projects selected with the approval of the department.

**Term Offered:** Spring, Summer, Fall**PHYS 4920 Senior Capstone Project**

[1 credit hour]

Required senior capstone project for all physics and astronomy majors. The topics may involve physics/astronomy research, physics/astronomy education, research in a related field with an emphasis on physics/astronomy, internships with companies or other institutions with an emphasis on physics/ astronomy. Students should register for this course in the closest spring semester prior to graduation.

**Prerequisites:** PHYS 4950 with a minimum grade of D-

**PHYS 4940 Internship in Renewable Energy**

[1-4 credit hours]

Experiential learning in an advisor-approved business, non-profit, or academic organization. Maximum of three hours may count toward minor. Credit hours 1-4; may be repeated once for credit

**Prerequisites:** PHYS 3400 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**PHYS 4950 Undergraduate Professional Development Seminar**

[1 credit hour]

Selected topics on professional development as it applies to junior / senior level physics or astronomy major undergraduates. Specific emphasis will be on topics relevant to near-term professional goals of students (graduate school applications, job interviews, career pathways, CV/resume, professional presentation skills, and ethical research).



**PHYS 4980 Special Topics In Physics**

[1-4 credit hours]

Individual or small group study of selected topics not covered in regular undergraduate courses.

**Term Offered:** Spring, Summer, Fall

## Political Science (PSC)

**PSC 1200 American National Government**

[3 credit hours]

An introductory survey of the institutions, processes, and politics of the government of the United States and its relationship to state governments. Required primary texts include the United States Constitution, Declaration of Independence, a minimum of five selected Federalist Papers, Gettysburg Address, Emancipation Proclamation, and Martin Luther King Jr.'s Letter from Birmingham Jail. The course adheres to appropriate university, state, and federal guidelines on assessment, content, and transferability.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

**PSC 1710 Current International Problems**

[3 credit hours]

A course designed to give the student a perspective on world affairs through an examination of some contemporary international problems like war, human rights, democratization, regional politics, and global health and the environment.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**PSC 2210 Women And Politics**

[3 credit hours]

An exploration of women and gender relations in US political life. Special attention is paid to differences among women, their socializing experiences, political power bases, and legal status.

Multicultural US Diversity

**PSC 2300 Principles Of State And Local Government**

[3 credit hours]

A study of the political processes and institutions of American state and local governments, with attention given to selected areas of public policy and intergovernmental relations.

**Term Offered:** Spring, Summer, Fall

**PSC 2400 Topics in Political Science**

[3 credit hours]

Examination of current topics in Political Science. Area and topic to be determined by instructor.

**Term Offered:** Spring, Fall

**PSC 2600 Principles of Comparative Politics**

[3 credit hours]

How can we explain the vast array of political systems around the world? This course examines the political systems of various countries and the internal and external factors shaping their political decisions. We will focus on institutional arrangements at the country level and the shaping forces behind their design, as well as on broad global topics affecting national politics

**Term Offered:** Spring, Fall

**PSC 2660 African Politics**

[3 credit hours]

The character and development of African political institutions and processes with a special emphasis on patterns in the post-independence period and prospects for the future.

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**PSC 2700 Principles Of International Relations**

[3 credit hours]

An examination of the theoretical and methodological foundations of the international system. Through case studies, students will analyze and predict issues of cooperation and competition among states. For example, why does war occur? Why does the international system have particular international institutions rather than others? What best explains a state's foreign policy?

**Term Offered:** Spring, Summer, Fall

**PSC 2770 Great Decisions: America's Foreign Policy**

[1 credit hour]

(1 hour) An examination of key U.S. foreign policy issues as decided by the Foreign Policy Association, which takes place both in a classroom setting and through a speaker series with public discussions.

**Term Offered:** Fall

**PSC 2780 Political Science and Pop Culture**

[3 credit hours]

(3 hours) This course critically examines the role that politics and pop culture play in creating and shaping each other and the roles that each play in our lives. This course also acts as an overview of some of the major issues in political science such as democratization, war, and human rights.

**Term Offered:** Spring, Fall

**PSC 2800 Principles Of Political Theory**

[3 credit hours]

This course investigates core concepts in the history of political theory such as justice, liberty, and equality. We discuss how and why the influence of certain authors and ideas persists. Contemporary issues are interpreted using these authors and ideas in order to strengthen critical thinking skills and broaden students' thinking about politics.

**Term Offered:** Spring, Fall

**PSC 3150 Research and Writing in Political Science**

[3 credit hours]

This course introduces the student to academic writing and research techniques in the political science discipline. Topics covered include: research ethics, scholarly literature review, peer-review process, research questions and research design, methodological approaches, and data analysis, among others.

**Term Offered:** Spring

**PSC 3210 Political Parties**

[3 credit hours]

Why are political parties central to organizing democracy? This course examines how they set the terms of public debate, mobilize citizens, inform voter preferences, and shape policy.

**Term Offered:** Spring, Fall

**PSC 3250 Public Opinion**

[3 credit hours]

This course explores the role of public opinion in American politics. It also develops data analysis skills and familiarizes students with survey development.

**Term Offered:** Spring, Fall**PSC 3270 Campaign and Elections**

[3 credit hours]

Campaigns and elections are vital components of democracy in the United States. In this course, we examine how candidates, parties, and citizens participate in the electoral process. Topics covered throughout the semester include candidate recruitment, voting behavior, advocacy groups, campaign finance, and the impact of new technology on voter mobilization.

**Term Offered:** Spring, Fall**PSC 3280 Race and American Politics**

[3 credit hours]

This course examines the role that race plays in the development of American politics. The class investigates definitions of race, how they have evolved, and how they continue to influence policy debates. This seminar assesses the impact that different racial groups, and their struggles for equality, have had on American democracy. This course examines the leading theoretical frameworks and empirical findings to analyze the relationship between race and American political development.

**Term Offered:** Spring, Summer, Fall  
Multicultural US Diversity**PSC 3410 Principles of Public Policy**

[3 credit hours]

This course is an introduction to public policy. It is focused on the factors that affect policymaking in the United States.

**Term Offered:** Spring, Summer, Fall**PSC 3500 Principles Of Law**

[3 credit hours]

An overview of the politics of law. We examine such questions as the sources and existence of law, the legal process in civil and criminal cases, the nature of rights and the search for justice through participation in the legal system. Addresses specific issues such as plea bargaining and jury trials, personal injury lawsuits, national security and police powers, and the nomination and confirmation of federal judges.

**Term Offered:** Spring, Summer, Fall**PSC 3510 Constitutional Law I**

[3 credit hours]

Examines the political and institutional role of the U.S. Supreme Court in the development of the American legal system, the separation of powers between the executive, legislative, and judicial branches of the federal government, and the relationship between the federal government and the states. The course focuses on the analysis of Supreme Court cases as well as political science and legal scholarship.

**Term Offered:** Spring, Fall**PSC 3520 Constitutional Law and Politics II**

[3 credit hours]

Examines the political and institutional role of the Supreme Court in the development of the U.S. system of civil liberties, the relationship between judicial decisions and state actions affecting rights such as free speech, religion, and privacy, and the underlying theories of civil liberty in a democratic society. The course focuses on the analysis of Supreme Court cases as well as political science and legal scholarship.

**Term Offered:** Spring**PSC 3600 Fascism and Populism in Comparative Perspective**

[3 credit hours]

A comparative survey of historical fascist regimes and contemporary populist governance, mainly in Europe and Latin America. Contemporary populist rule is frequently equated with fascism but the differences are significant. In this course we will examine the differences and similarities between the two regime types.

**PSC 3730 American Foreign Policy**

[3 credit hours]

An examination of the American foreign policy-making process as well as an analysis of the major problems facing the United States in its interaction with the international environment.

**Prerequisites:** (PSC 1200 with a minimum grade of D- or PSC 1300 with a minimum grade of D-) or (PSC 1400 with a minimum grade of D- or PSC 1710 with a minimum grade of D-) or PSC 2700 with a minimum grade of D-**PSC 3790 Model United Nations/Model European Union**

[1 credit hour]

This is a faculty-advised, student-led simulation course. Students are exposed to the decision-making procedures of one of two major international organizations: The United Nations or The European Union. Through role-play, students will represent countries, delegates, prime ministers, foreign ministers, and government officials. Whenever possible, the organization represented in a given semester (UN or EU) will be chosen based on the opportunity to attend a conference where students will apply the concepts learned throughout the semester.

**Term Offered:** Spring, Summer, Fall**PSC 3800 Sexual Politics**

[3 credit hours]

This course critically examines gender, sex and sexuality as identities, practices, and relationships. Through readings in feminist political theory and history, we study state practices, social norms, and historical movements for change to understand why and how various forms of gender, sex and sexuality become normal or are challenged in unexpected ways.

**Term Offered:** Spring, Fall**PSC 3820 Contemporary Political Ideas**

[3 credit hours]

Surveys developments and themes in political theory since the early 20th century. Particular issues addressed include bureaucracy, mass society, state and civil violence, and identity politics.

**Term Offered:** Spring

**PSC 3850 Sports, Politics and Policy**

[3 credit hours]

This course explores the intersection of sports with politics and policy-making. Topics covered include sports and nationalism, sports and international diplomacy, globalization and sports, economic development and sport stadiums, baseball and antitrust law, Title IX and women's athletics, college athletics and race, and athletes and political advocacy.

**PSC 3990 Independent Study For Honors Students**

[3 credit hours]

Individual reading and research in selected topics for honors students.

**Term Offered:** Spring, Summer, Fall**PSC 4220 Advocacy Groups in US Politics**

[3 credit hours]

This course investigates the role of advocacy groups in American politics. It develops practical lobbying skills through experiential learning and covers topics such as the role of advocacy groups in campaigns and elections, grass roots mobilization, and agenda setting.

**Term Offered:** Spring, Fall**PSC 4230 Presidency**

[3 credit hours]

Presidents enjoy special prominence in the American political system. However, they are strongly influenced by their interactions with other political institutions, such as Congress, courts, the bureaucracy, and political parties. This course examines the presidency's original design and how the office has developed over time. We also investigate contemporary cases and controversies in presidential power.

**Term Offered:** Spring**PSC 4280 U.s. Congress**

[3 credit hours]

Despite its key role in our political system, the U.S. Congress is not well understood by the public. This course examines how it works: the committee system, parties, and arcane legislative procedures. We consider topics like the impact of party polarization on congressional gridlock, the impact of divided government on policymaking, and how to improve representation.

**Term Offered:** Spring, Summer, Fall**PSC 4300 Principles of Public Administration**

[3 credit hours]

This course provides an overview of public administration. It addresses organization theory, decision making, budgeting, public policy, and the changing role of public institutions. It covers important democratic, professional, ethical and human values that are central to public administration.

**PSC 4320 Urban Policy & Administration**

[3 credit hours]

What does it take to govern a city and its environs? In this course, we examine the balance between the pressing needs of a city and the many economic and political constraints that citizens, leaders, and experts must navigate to achieve their goals.

**Term Offered:** Spring, Summer, Fall**PSC 4340 Environmental Policy**

[3 credit hours]

Policy for air and water pollution control, hazardous wastes, nuclear wastes. Examination of EPA, Congressional committees, state and city agencies. Some international issues.

**Term Offered:** Fall**PSC 4360 Ethics In Public Policy And Administration**

[3 credit hours]

Examination of values and principles which guide public policy formation and public administration. Applications of philosophical concepts to policy problems and the responsibilities of public administrators will be emphasized.

**Term Offered:** Spring, Summer, Fall**PSC 4380 Fundraising**

[3 credit hours]

This course examines the theoretical, practical and ethical issues related to public and nonprofit organizations fundraising. This course will prepare students who plan to work in public and nonprofit organizations to win and manage grants as well as philanthropic donations from multiple sources.

**Term Offered:** Spring, Summer, Fall**PSC 4410 Public and Nonprofit Management**

[3 credit hours]

This course examines management techniques, organizational design, strategic planning and the theoretical and practical behavioral skills that are necessary for effective public and nonprofit management. These skills include communication, organizational, and leadership skills within public and nonprofit organizations.

**Term Offered:** Spring, Summer, Fall**PSC 4420 Political Determinants of Health**

[3 credit hours]

An examination of the political determinants of health, that is, the upstream political forces and policy decisions that are the causal sources of the social conditions that lead to health inequities. This course introduces the importance of power, politics, advocacy, and policy in public health. Students will learn models of health equity and the political determinants of health and apply these to contemporary case studies with particular attention to the health effects of racism.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**PSC 4430 Human Resources Management in Public and Nonprofit Organizations**

[3 credit hours]

This course is a study of human resource management in public and nonprofit organizations. The course explores broad themes within public personnel administration such as recruitment, retention, motivation, and diversity to provide students with the opportunity to develop technical skills necessary for effectively managing human resources in contemporary public agencies, including government and nonprofit organizations.

**Term Offered:** Spring, Summer, Fall**PSC 4440 Budgeting And Financial Administration**

[3 credit hours]

An examination of the institutions and techniques of financial administration, including government accounting, budgeting, financial management and government choice.

**Term Offered:** Spring, Summer, Fall

**PSC 4480 Introduction to Nonprofits**

[3 credit hours]

This course provides an overview of the voluntary sector with an emphasis on the historical, philosophical, and theoretical justifications of the nonprofit sector, voluntary action, and philanthropy. The course will explore the administration and management of nonprofit organizations as well as the impact nonprofit organizations have on public policy.

**Term Offered:** Spring, Summer, Fall**PSC 4550 CONTEMPORARY ISSUES IN LAW AND POLITICS**

[3 credit hours]

Examines current controversies in US law and politics drawing on recent research in political theory, constitutional history, and legal doctrine. Includes issues such as freedom of speech, presidential war powers, and religious freedom.

**Term Offered:** Spring, Fall**PSC 4560 Law And Public Administration**

[3 credit hours]

Survey of law topics that are relevant for managers of public and nonprofit organizations.

**Term Offered:** Spring, Summer, Fall**PSC 4590 Law, Policy And The Politics of Sexuality**

[3 credit hours]

This course explores the public policies that affect the lesbian, gay, bisexual and transgender communities in the United States and in other countries. It examines the factors that affect policymaking in this area.

**Term Offered:** Spring, Fall**PSC 4640 The European Union**

[3 credit hours]

An analysis of the evolution, institutional structure, and operation of the European Union. Issue areas include human rights, trade, migration and refugees, international and domestic law, and foreign policy.

**Term Offered:** Spring, Fall**PSC 4660 Politics of Africa**

[3 credit hours]

There are multiple political systems, ethnic identities and external interests among the countries in Sub-Saharan Africa. Applying a comparative lens, we will survey Africa's pre-colonial and colonial heritage; and economic, cultural, social and environmental characteristics that help define Africa. We will delve deeper into a few countries as case studies as well as examine the international and regional influences, thereby gaining a broad understanding of the political, social and economic implications surrounding Africa today.

**Term Offered:** Fall

Multicultural Non-US Diversity

**PSC 4680 Politics of Latin America**

[3 credit hours]

This course provides a survey of the Latin American region, its political transformation, and place in international politics. It covers an array of issues that have shaped and continue to shape the region: its history, its people, its culture, institutions and politics, and social and economic issues. Themes are approached both from a regional and country-level perspective.

Multicultural Non-US Diversity

**PSC 4720 International Organization**

[3 credit hours]

A study of the background, general concepts and problems of international organizations including the United Nations, regional organizations and non-governmental organizations. Issues covered include war, security, human rights, trade, international law, and global health.

**Term Offered:** Fall**PSC 4740 Politics of the Middle East**

[3 credit hours]

An advanced examination of international relations theory applied to the Middle East and a survey of modern Middle Eastern governments, cultures, and institutions with case studies on key issues facing the region.

Multicultural Non-US Diversity

**PSC 4750 Terrorism in International Relations**

[3 credit hours]

This course will give students a comparative historical, empirical, and theoretical overview of the causes, strategies, and goals of terrorist and counter-terrorism. The primary focus of the course is on the comparative and international nature of terrorism. Global and regional case studies will be used to better understand issues related to terrorism.

**PSC 4770 Human Rights**

[3 credit hours]

What are human rights? How are human rights created? Why do states protect or repress human rights? This class answers these questions by examining both the theoretical and empirical contributions to the study of human rights from the social sciences and law. In addition, human rights best (and worst) practices are considered.

**Term Offered:** Spring**PSC 4810 Environmental Justice**

[3 credit hours]

Environmental Justice examines the unequal distribution of environmental benefits and burdens among vulnerable communities. This course will examine the challenges and solutions associated with environmental justice, both as a social movement and as a public policy initiative. We will discuss several different policy areas like health, pollution, hazardous waste siting, climate change, food, and natural disasters; and strategies applied by NGOs and interest groups, to understand the patterns of environmental inequality and injustice.

**PSC 4900 Politics of Asia**

[3 credit hours]

Asia is the largest of all continents and hosts more than half the world's population. This course will apply a comparative framework to explore the historical, cultural, and social forces shaping the politics of Asia.

We will explore the similarities and variations across countries, regional influences of countries on one another, and the role of the international community, with special focus on U.S. - Asia relations (such as North-South Korea, Japan, India, China).

Multicultural Non-US Diversity

**PSC 4940 Applied Politics Internship**

[3 credit hours]

A study of electoral politics, public decision-making or policy implementation through internships with candidates, political parties, public officials or governmental or nonprofit agencies.

**Term Offered:** Spring, Summer, Fall

**PSC 4950 Capstone in Political Science**

[1 credit hour]

This course provides the opportunity to integrate and reflect on knowledge and experiences gained during completion of the political science major with an eye towards post-graduation endeavors such as graduate or professional study, or employment. Topics include how to construct a portfolio and write cover letters, resumes, and CVs.

**Term Offered:** Spring, Fall**PSC 4960 Senior Honors Thesis**

[3 credit hours]

Supervised research and writing for honors students only.

**Term Offered:** Spring, Summer, Fall**PSC 4980 Current Topics In Political Science**

[3 credit hours]

Timely examination of emerging issues within the various segments of the discipline of political science.

**Term Offered:** Spring, Fall**PSC 4990 Independent Study In Political Science**

[1-3 credit hours]

Individual study and research in a selected political science topic under mentorship of a faculty member.

**Term Offered:** Spring, Summer, Fall

## Pre-Medical (PMED)

**PMED 1000 Hospital Field Experience**

[1-3 credit hours]

Supervised independent study designed to provide pre-medical students with volunteer experiences in a health care institution. To receive 1 hr credit, students must complete 4 hrs of volunteer work per week. May be taken only as PS/NC.

**Term Offered:** Spring, Summer, Fall

## Professional Sales (PSLS)

**PSLS 3000 Sales Career Orientation And Management**

[1 credit hour]

This course addresses careers in sales, looking at different types of selling and sales activities.

**Term Offered:** Spring, Fall**PSLS 3080 Purchasing And Business Relationship Management**

[3 credit hours]

Purchasing and Business Relationship Management is designed for students interested in a career in sales, purchasing or general marketing. You will be exposed to the industrial buyer behavior and buying processes, strategic purchasing, relationship management and supply chain management. You will develop skills in communication, planning, analytical thinking and negotiation.

**Term Offered:** Spring, Summer, Fall**PSLS 3440 Professional Sales**

[3 credit hours]

This course introduces the professional selling process from a customer collaboration perspective. The course utilizes role plays and exercises to develop a strong but adaptable sales process that will serve a student well in a business or complex selling situation.

**Term Offered:** Spring, Summer, Fall**PSLS 3450 Sales Technologies and Strategies**

[3 credit hours]

This course introduces the student to the activities involved in supporting buyer-seller interactions and the personal selling function using the principles of Customer Relationship Management (CRM). Its purpose is to provide skills in areas related to prospecting, sales force automation technology, time and territory management, and managing customer follow-up.

**Term Offered:** Spring, Summer, Fall**PSLS 4500 International Sales Negotiation**

[3 credit hours]

This course is designed to explore the cultural and business implications of a sales career within an international or cross-cultural setting.

Students will work in an applied setting engaging in role-playing and company analysis to understand the unique characteristics of this context. Prerequisite: Junior standing

**PSLS 4710 Salesforce Leadership**

[3 credit hours]

The role and functions of the first line sales manager will be examined, including sales force size and organization, and management of the sales force. Issues related to hiring, training, supervising, compensating and evaluating salespersons are also emphasized.

**Prerequisites:** PSLS 3440 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PSLS 4740 Advanced Sales**

[3 credit hours]

This course provides in depth study of advanced selling concepts including relationship management, account management, strategic selling, team selling and selected current topics. The course includes business presentations, field work, role playing and case studies.

**Prerequisites:** PSLS 3440 with a minimum grade of D-**Term Offered:** Spring, Fall**PSLS 4940 Integrative Capstone: Sales Internship**

[3 credit hours]

Receive practical sales experiences working in a business environment.

**Prerequisites:** PSLS 3440 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

## Psychology (PSY)

**PSY 1010 Principles Of Psychology**

[3 credit hours]

A survey of the branches of psychology and the scientific approach to the study of behavior.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

**PSY 2100 Statistical Methods**

[3 credit hours]

Descriptive and inferential statistics as applied to research in basic behavioral science and to clinical research. Students are encouraged to take PSY 3120 Understanding Psychological Research before taking this course.

**Prerequisites:** MATH 1180 with a minimum grade of C- or MATH 1200 with a minimum grade of C- or MATH 1320 with a minimum grade of C- or MATH 1330 with a minimum grade of C- or MATH 1340 with a minimum grade of C- or MATH 1750 with a minimum grade of C- or MATH 1830 with a minimum grade of C- or MATH 1850 with a minimum grade of C- or MATH 1920 with a minimum grade of C- or MATH 2450 with a minimum grade of C- or MATH 2600 with a minimum grade of C-

**Term Offered:** Spring, Fall**PSY 2200 Abnormal Psychology**

[3 credit hours]

Disordered human behavior; its etiology, classification and treatment. Consideration of different theories.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PSY 2400 Cognitive Psychology**

[3 credit hours]

Theoretical and empirical approaches to the role of pattern recognition, attention, memory, language, problem solving and decision making in human thinking.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PSY 2510 Lifespan Developmental Psychology**

[3 credit hours]

Emphasizes research and theory from conception through old age, and integrates important developmental issues within a lifespan approach.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PSY 2600 Psychobiology**

[3 credit hours]

The neural bases of behavior; topics include organization of the nervous system, perception and movement, learning and memory, emotion and motivation, drugs, language, and mental disorders.

**Term Offered:** Spring, Summer, Fall**PSY 2610 Learning And Motivation**

[3 credit hours]

Extended treatment of learning, conditioning and motivation including operant learning, reinforcement schedules, symbolic reward, generalization and related theoretical developments.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Fall**PSY 2700 Social Psychology**

[3 credit hours]

Theoretical and empirical treatment of socially-based perception and cognition, interpersonal influence, small group processes and interpersonal relations.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PSY 3000 History Of Psychology**

[3 credit hours]

An historical treatment of the development of modern psychology, starting in the mid 19th century, with some consideration of earlier approaches. Theoretical developments are emphasized.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PSY 3010 Culture And Psychology**

[3 credit hours]

Theoretical and empirical examination of the generality of psychological concepts across cultural and ethnic groups. A cultural analysis of key topics in clinical, cognitive, developmental and social psychology.

**Prerequisites:** PSY 2200 with a minimum grade of D- or PSY 2400 with a minimum grade of D- or (PSY 2500 with a minimum grade of D- or PSY 2510 with a minimum grade of D- or PSY 2700 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall**PSY 3110 Research Methods In Psychology**

[4 credit hours]

Design, execution, analysis and reporting of research in psychology. Lecture and laboratory.

**Prerequisites:** PSY 2100 with a minimum grade of C-**Term Offered:** Spring, Fall**PSY 3200 Personality And Individual Differences**

[3 credit hours]

Overview of major theoretical ideas and empirical research in personality and individual differences.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PSY 3210 Clinical Psychology**

[3 credit hours]

An overview of the field of Clinical Psychology including clinical assessment, psychotherapy, community intervention methods and professional/ethical issues.

**Prerequisites:** PSY 2200 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PSY 3220 Psychopathology Of Childhood**

[3 credit hours]

Clinical and experimental perspectives on behavioral, developmental and emotional disturbances in childhood.

**Prerequisites:** (PSY 2500 with a minimum grade of D- and PSY 2200 with a minimum grade of D-) or (PSY 2510 with a minimum grade of D- and PSY 2200 with a minimum grade of D-)

**Term Offered:** Spring, Summer, Fall**PSY 3230 Psychological Testing**

[3 credit hours]

History and purpose of psychological testing, review of statistics, reliability and validity, test development, measures of intelligence, personality, and clinical assessment

**Prerequisites:** PSY 1010 with a minimum grade of D- and PSY 2100 with a minimum grade of D-

**PSY 3300 Organizational Development Theory and Principles**

[3 credit hours]

Organizational Development Theory and Principles This course uses applied behavioral science, social psychology and humanist ideologies. This course will examine organizational fundamentals It investigates systems theory; client centered; integral and learning organizations. Conscious business models; globalization; and sustainability will be discussed. Exploration of ethics, morality, values and transforming organizations will be studied. Upon completing this course a student can think critically about organizations and synthesize and apply organizational development theory and concepts.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Fall**PSY 3310 OD Practices**

[3 credit hours]

Organizational Development Practices We will examine processes, interventions, and methods for leading and participating within organizations. Topics include working with collaborative organizations; initiating and leading change; process improvement; appreciative inquiry and action research; empowerment; integration and diversity; working with teams; focus groups; managing organizational stress; renewal and reintegration and authenticity and trust. Upon completion of the course students will possess tools to intervene in organizations and make informed, reasoned and ethical choices about assisting organizations to change.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PSY 3320 Psychology of Work**

[3 credit hours]

Psychology of Work is intended to look at life inside an organization and view organizations from an interpersonal level. At the conclusion of this course students will possess a greater understanding of how they act and behave within an organization. Topics we will examine include whole life satisfaction; career anchors; influence; conflict; change; crucial and critical conversations; coaching; ownership of performance and tolerating ambiguity.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PSY 3330 Psychology of Leadership**

[3 credit hours]

Psychology of Leadership focuses on developing yourself as a leader. Based on the work of Warren Bennis, we discuss how to become a leader and examination of our mindset about leadership. Students will demonstrate a holistic perspective of leadership by understanding the basics of leadership; by knowing our self and knowing the world. Students will critically think about their own leadership abilities and determine if leadership is for them.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Fall**PSY 3400 Cognitive Neuropsychology**

[3 credit hours]

Analysis of the neural basis of higher level mental functions (e.g., perception, language, emotion), with an emphasis on anatomic and functional differences between the left and right cerebral hemispheres.

**Prerequisites:** PSY 2400 with a minimum grade of D-**Term Offered:** Spring, Fall**PSY 3610 Behavioral Neuroscience**

[3 credit hours]

In-depth treatment of the structure and function of neurons and their mediation of behavior, both normal and abnormal: circadian rhythms, eating, emotions, sexual behavior, memory, language and mental disorders. The scientific study of the brain and methods of neuroscience are emphasized.

**Prerequisites:** PSY 2600 with a minimum grade of C or BIOL 2150 with a minimum grade of C or BIOL 2170 with a minimum grade of C or BIOL 4250 with a minimum grade of C**Term Offered:** Spring, Fall**PSY 3630 Everyday Behavior Analysis**

[3 credit hours]

Application of learning and motivation in the home, classroom and workplace. Covers how to define and measure behavior principles of positive and negative reinforcement, and the effects of aversive control.

**Term Offered:** Spring, Summer, Fall**PSY 3710 Psychology and the Law**

[3 credit hours]

Emphasizes the utilization of theoretical and empirical notions of psychological science as they apply to both civil and criminal law.

**Prerequisites:** PSY 2700 with a minimum grade of D-**Term Offered:** Spring, Fall**PSY 3720 Social Cognition**

[3 credit hours]

This course examines how people make sense of other people, themselves, and social situations by examining the cognitive structures and processes involved in judgments, decisions, perceptions, beliefs, and behavior. The topics include (but are not limited to) attribution, counterfactual thinking, judgment heuristics, schemas, person perception, attitudes, and stereotypes/prejudice.

**Prerequisites:** PSY 1010 with a minimum grade of D-**PSY 3730 Stereotyping, Prejudice, & Discrimination**

[3 credit hours]

This course will examine issues of and related to stereotyping, prejudice, and discrimination from a social psychological perspective with a special emphasis on racism and sexism.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

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**PSY 3740 Health Psychology**

[3 credit hours]

This course explores the behavioral and psychological factors that affect stress and illness; topics include health-compromising behaviors (e.g., smoking), stress and pain management, alternative medicine, treatment adherence, and chronic illness.

**Prerequisites:** PSY 1010 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall

**PSY 3750 Science and Pseudoscience**

[3 credit hours]

In this interdisciplinary course, students will be exposed to scientific principles, concepts, and methods that guide the pursuit of knowledge and aid in the development of critical thinking skills. Students will also be provided with information on how knowledge obtained from science impacts our lives and understanding of the world around us. In learning what constitutes a scientific claim, students will also learn what constitutes an unscientific claim, or pseudoscience.

**Term Offered:** Spring, Summer, Fall**PSY 3800 Honors Proposal**

[1-3 credit hours]

Literature review and design of an experiment that will form the basis for an Honors Thesis; a formal written proposal will be prepared in conjunction with, and approved by, the thesis advisor and must be submitted to the departmental honors advisor.

**Prerequisites:** PSY 2100 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PSY 3910 Honors Research**

[1-3 credit hours]

Data collection for research that will form the basis for the Honors Thesis. Admission to Psychology Honors and consent of instructor.

**Term Offered:** Spring, Summer, Fall**PSY 3940 Externship In Psychology**

[1-4 credit hours]

Supervised work experience in Psychology-related employment settings.

**Term Offered:** Spring, Summer, Fall**PSY 4100 Research Practicum**

[1-4 credit hours]

Directed by experience in empirical psychological research by students participating in faculty laboratories. Section number denotes field of research. :030-Developmental psychology :040-Social psychology :060-Cognitive and biological psychology :070-Clinical psychology

**Term Offered:** Spring, Summer, Fall**PSY 4500 Research In Developmental Psychology**

[3-4 credit hours]

A hybrid writing-intensive course developed to provide students both classroom and laboratory experiences to provide training in designing and conducting research in developmental psychology; includes work on research projects.

**Prerequisites:** (PSY 2500 with a minimum grade of D- and PSY 3110 with a minimum grade of D-) or (PSY 2510 with a minimum grade of D- and PSY 3110 with a minimum grade of D-)**Term Offered:** Spring, Fall**PSY 4700 Research In Social Psychology**

[2-4 credit hours]

A hybrid research course with both classroom and laboratory experiences to provide training in designing and conducting research in experimental social psychology, includes direct work on research projects. May repeat for credit. Prerequisite: PSY 3110, 2700 or equivalent.

**Prerequisites:** PSY 3110 with a minimum grade of D- and PSY 2700 with a minimum grade of D-**PSY 4910 Independent Research**

[1-4 credit hours]

This course will be offered every semester and will fill the requirement for an advanced research course. A student will carry out an empirical research project of his or her own design under the guidance of a member of the faculty.

**Prerequisites:** PSY 3110 with a minimum grade of D-**Term Offered:** Spring, Summer, Fall**PSY 4960 Honors Thesis**

[2-3 credit hours]

Analysis, interpretation and reporting of research aimed at understanding some aspect of behavior or its underlying mechanisms. The reports include a formal written thesis, a scientific poster and an oral presentation.

**Prerequisites:** (PSY 3110 with a minimum grade of D- and PSY 3800 with a minimum grade of D- and PSY 3820 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall**PSY 4980 Special Topics In Psychology**

[3 credit hours]

Seminar discussion of selected topics in psychology to allow for a more comprehensive treatment than possible in other available courses; or technical laboratory course in neuroanatomical techniques. Topics will vary depending on student demand and availability of instructors.

**Term Offered:** Spring, Summer, Fall**PSY 4990 Independent Study**

[1-4 credit hours]

This course is a tutorial consisting of directed independent reading, conferences with the instructor to discuss the readings and assess the student's understanding of their significance, and a paper in which the student summarizes the read material, integrates the material and discusses its significance for understanding some aspect of behavior.

**Term Offered:** Spring, Summer, Fall

## Recreation and Rec Therapy (RCRT)

**RCRT 1300 Introduction To Recreation And Leisure Studies**

[3 credit hours]

An introductory course which gives an overview of recreation and leisure in educational, governmental, institutional and professional settings. Explores historical, social and economic implications from personal and professional perspectives. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 1310 Introduction to Recreational Therapy Programming**

[3 credit hours]

An introductory course that presents theories and principles of programming, program planning, practical experiences in implementation, and facilitation of recreational therapy programs. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 3310 Inclusion and Recreational Therapy Services**

[3 credit hours]

An introductory course which defines the principals of inclusion and major legislation that impacts the provision and delivery of recreational therapy services for individuals with disabilities. Thirty hour volunteer component required. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall



**RCRT 3710 Outdoor and Adaptive Sports Program Delivery in Recreational Therapy Practice**

[3 credit hours]

An introduction to theory and techniques related to risk management, leadership, and administration of outdoor pursuits in RT practice as it applies to working with individuals in clinical and non-clinical settings. Students will also gain an understanding of adapted sports, modification of equipment, adapted sports competition for persons with disabilities and the classification system governing adapted sports competition for veterans. Minimum "C" required for RCRT majors. Prerequisite: Senior Standing and Acceptance in the Recreational Therapy program.

**Term Offered:** Spring, Fall**RCRT 4000 Community and Event Planning in Recreational Therapy Service**

[3 credit hours]

This course introduces the principles, strategies, and risk management concerns for planning a variety of events to achieve RT treatment outcomes and community/social integration. Students gain experience planning accessible events for a variety of group sizes and diverse populations in RT service. Event critiques required. Minimum "C" required for RCRT majors.

**Term Offered:** Summer, Fall**RCRT 4010 Planning & Promotion of Sport**

[3 credit hours]

This course focuses on the basic principles of marketing and delivery of services associated with intercollegiate athletics, professional, and multi-sport club operations, facilities and management of resources. This course also examines motivation and behavior of sports tourists.

**Term Offered:** Fall**RCRT 4040 Recreational Therapy Services within the Veterans Administration**

[3 credit hours]

The course will focus on current trends, issues, and clinical techniques specific to serving Veterans within the Veteran's Administration VA system as a Recreational Therapist. Course content will include orientation to military culture and rituals, specific diagnoses, and conditions commonly experienced by Veterans, delivery of outcome-based RT interventions and special programs, partnerships, and an in-depth look into internships and employment opportunities within the VA system.

**Term Offered:** Spring, Fall**RCRT 4330 Administration In Recreational Therapy**

[3 credit hours]

This course focuses on the administrative functions of delivering Recreational Therapy services. Students will gain an understanding of the aspects of management principles including ethics, legislation, technology, quality management, risk management, financial and human resources, marketing, and accrediting agencies. Minimum "C" required for RCRT majors. Note: Senior Standing and Acceptance in the Recreational Therapy program.

**Term Offered:** Spring, Fall**RCRT 4340 Leisure, Recreation, And Aging in Recreational Therapy Practice**

[3 credit hours]

This course provides a study of the impacts of aging on leisure and recreation activities during middle and later adulthood by investigating the aging process, leisure across the lifespan, and the impact of leisure and recreation on quality of life and wellness from an RT perspective. Minimum grade of "C" required for RCRT majors.

**Prerequisites:** (RCRT 1300 with a minimum grade of C and RCRT 1310 with a minimum grade of C and RCRT 3310 with a minimum grade of C and RCRT 4720 with a minimum grade of C)

**Term Offered:** Spring, Fall**RCRT 4440 Park And Recreation Planning**

[3 credit hours]

An integration of landscape architecture, facility design and location, as well as the functional aesthetic considerations of park and recreational facility planning. Emphasis will be on plan-formulation procedures.

**Term Offered:** Spring**RCRT 4450 Research Applications In Recreational Therapy**

[3 credit hours]

This course introduces research applications utilized by Recreation Therapy practitioners. Students will learn about evidence based practice, development and implementation of survey research, and the use of experimental designs. Minimum "C" required for RCRT majors.

**Term Offered:** Fall**RCRT 4560 Recreational Therapy Interventions 1**

[3 credit hours]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using Recreational Therapy interventions utilizing leisure education, assistive technology, and animal assisted therapy within treatment settings. Minimum "C" required for RCRT majors. Registration restriction: Acceptance into the RT professional sequence.

**Prerequisites:** (RCRT 1300 with a minimum grade of C and RCRT 1310 with a minimum grade of C and RCRT 3310 with a minimum grade of C and RCRT 4720 with a minimum grade of C)

**Term Offered:** Fall**RCRT 4565 Recreational Therapy Interventions 2**

[3 credit hours]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using Recreational Therapy interventions utilizing therapeutic art, horticulture, and stress management/relaxation therapy within treatment settings. Minimum "C" required for RCRT majors.

**Prerequisites:** (RCRT 4340 with a minimum grade of C and RCRT 4730 with a minimum grade of C and RCRT 4740 with a minimum grade of C and RCRT 4560 with a minimum grade of C)

**Term Offered:** Spring**RCRT 4570 Recreational Therapy Interventions 3**

[2 credit hours]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using Recreational Therapy interventions utilizing therapeutic fitness and aquatic therapy within treatment settings. Minimum "C" required for RCRT majors.

**Term Offered:** Fall

**RCRT 4600 Therapeutic Arts**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using arts and crafts modalities. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4610 Rt Intervention: Horticulture Therapy**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using horticulture modalities. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4620 Animal Assisted Therapy**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using a variety of animal-assisted modalities. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4630 Therapeutic Activities**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using a variety of games, humor and play modalities. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4640 Rt Intervention: Therapeutic Groups**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using therapeutic group techniques and processes as a modality. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4660 Relaxation And Stress Management**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using relaxation and stress management techniques as a modality. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4670 Rt Intervention: Leisure Education**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using leisure education activities, including: social skills, values clarification, leisure awareness, resources and knowledge. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4680 Rt Intervention: Assistive Technology And Techniques**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes utilizing assistive technology, techniques, and resources in therapeutic settings. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4690 Rt Intervention: Aquatic Therapy**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes utilizing swimming, evidence-based aquatic programming methods, and resources. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Summer, Fall**RCRT 4720 Introduction To Therapeutic Recreation**

[3 credit hours]

This course is designed to introduce the student to theories, models, principles, and history of therapeutic recreation service. Through lectures, discussions and self-directed learning activities, the student will examine the structure and function of therapeutic recreation processes in a variety of treatment settings. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4730 Physical and Neurological Diagnosis and Conditions in Recreational Therapy Practice**

[3 credit hours]

This course is designed to provide the student with in-depth knowledge of the diagnostic criteria, etiology, and symptomology related to physical, neurological, sensory, and metabolic diagnosis and conditions across the lifespan with a focus on RT practice. RT interventions, pharmacological interventions, family involvement, risk management, and other implications impacting RT practice will also be examined.

**Prerequisites:** (RCRT 1300 with a minimum grade of C and RCRT 1310 with a minimum grade of C and RCRT 3310 with a minimum grade of C and RCRT 4720 with a minimum grade of C)

**Term Offered:** Fall**RCRT 4740 Assessment And Documentation In Therapeutic Recreation**

[3 credit hours]

This course introduces the student to the APIE(D) process, reviews assessment tools (standardized and self-designed) used in practice, common documentation methods and skills needed for therapeutic recreation practice including: initial assessment, treatment planning, documentation, and discharge planning. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4750 Group Dynamics In Recreational Therapy**

[3 credit hours]

This course introduces students to the concepts and theories of the therapeutic group process as it applies to professional practice. Students will be introduced to and practice: facilitation skills, behavior modification techniques, and effective communication and leadership skills. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4770 Recreational Therapy Project Design**

[1 credit hour]

In support of the recreational therapy internship, the student will design a capstone project that links practical experience with formal academic preparation. Minimum "C" required for RCRT majors. Prerequisite: Senior Standing and Acceptance in the Recreational Therapy program.

**Corequisites:** RCRT 4940**Term Offered:** Spring, Summer

**RCRT 4780 Recreational Therapy Project Evaluation**

[1 credit hour]

In support of RCRT 4770, this course requires the student to evaluate, and prepare a professional presentation of the recreation therapy internship capstone project. Minimum "C" required for RCRT majors. Prerequisite: Senior Standing and Acceptance in the Recreational Therapy program.

**Term Offered:** Summer**RCRT 4790 Psychological Diagnosis and Conditions in Recreational Therapy Practice**

[3 credit hours]

This course is designed to provide the student with in-depth knowledge of the diagnostic criteria, etiology, and symptomology related to psychological conditions across the lifespan with a focus on RT practice. RT interventions, pharmacological interventions, family involvement, risk management, and other implications impacting RT practice will be examined.

**Prerequisites:** (RCRT 4340 with a minimum grade of C and RCRT 4730 with a minimum grade of C and RCRT 4740 with a minimum grade of C and RCRT 4560 with a minimum grade of C)

**Term Offered:** Spring**RCRT 4800 Clinical: Physical Rehabilitation**

[1 credit hour]

This course requires a 50-hour practicum experience in a community agency. The practicum experience provides the student a structured environment to apply the APIE(D) process with a physical rehabilitation population. Minimum "C" required for RCRT majors.

**Prerequisites:** RCRT 4730 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall**RCRT 4810 Recreational Therapy Fieldwork 1**

[1 credit hour]

This course requires a 50-hour practicum experience in a community agency. The practicum experience provides the student a structured environment to apply the Recreational Therapy APIE(D) process with a population served by a CTRS. Minimum "C" required for RCRT majors. Registration restriction: Acceptance into the RT professional sequence.

**Prerequisites:** RCRT 4730 with a minimum grade of C and RCRT 4790 with a minimum grade of C and RCRT 4740 with a minimum grade of C

**Term Offered:** Fall**RCRT 4820 Recreational Therapy Fieldwork 2**

[1 credit hour]

This course requires a 50-hour practicum experience in a community agency. The practicum experience provides the student a structured environment to apply the Recreational Therapy APIE(D) process with a population served by a CTRS. Minimum "C" required for RCRT majors. Registration restriction: Acceptance into the professional sequence.

**Prerequisites:** RCRT 4730 with a minimum grade of C and RCRT 4790 with a minimum grade of C and RCRT 4740 with a minimum grade of C

**Term Offered:** Fall**RCRT 4830 Recreational Therapy Fieldwork 3**

[1 credit hour]

This course requires a 50-hour practicum experience in a community agency. The practicum experience provides the student a structured environment to apply the Recreational Therapy APIE(D) process with a population served by a CTRS. Minimum "C" required for RCRT majors. Registration restriction: Acceptance into the professional sequence.

**Prerequisites:** RCRT 4730 with a minimum grade of C and RCRT 4790 with a minimum grade of C and RCRT 4740 with a minimum grade of C

**Term Offered:** Spring**RCRT 4840 Recreational Therapy Fieldwork 4**

[1 credit hour]

This course requires a 50-hour practicum experience in a community agency. The practicum experience provides the student a structured environment to apply the Recreational Therapy APIE(D) process with a population served by a CTRS. Minimum "C" required for RCRT majors. Registration restriction: Acceptance into the professional sequence.

**Prerequisites:** RCRT 4730 with a minimum grade of C and RCRT 4790 with a minimum grade of C and RCRT 4740 with a minimum grade of C

**Term Offered:** Spring**RCRT 4850 Recreational Therapy Internship Preparation**

[1 credit hour]

This course is designed to prepare the student for the recreational therapy internship process and professional employment in recreational therapy. Students will learn and practice professional skills, such as, resume writing, interviewing techniques, and professionalism. Student internship expectations and professional certifications and licensure are also addressed. Minimum "C" required for RCRT majors. Prerequisite: Senior Standing and Acceptance in the Recreational Therapy program.

**Term Offered:** Spring, Fall**RCRT 4860 Therapeutic Fitness**

[1 credit hour]

This course provides the student the fundamental skill development needed to implement therapeutic outcomes using therapeutic fitness modalities. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall**RCRT 4870 Comprehensive Program Planning In Recreational Therapy**

[3 credit hours]

This course requires the student to apply cumulative knowledge of the RT APIE(D) process through designing evidence-based: treatment programs, program evaluations, protocols and treatment plans in recreation therapy practice. Minimum "C" required for RCRT majors. Prerequisite: Senior Standing and Acceptance in the Recreational Therapy program.

**Term Offered:** Spring**RCRT 4900 Seminar In Recreation And Leisure**

[1-3 credit hours]

This course provides faculty the opportunity to develop additional curriculum in recreation therapy related academic areas not offered as part of the current curriculum. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Fall

**RCRT 4930 Senior Internship**

[4 credit hours]

An opportunity for the student to become totally involved as an intern in functionally related tasks which will help prepare for an appropriate role as a professional in the field. Not available for therapeutic recreation students. This course may be taken twice in the same semester.

**Term Offered:** Spring, Summer, Fall**RCRT 4940 Internship In Recreational Therapy**

[5 credit hours]

In accordance with the University of Toledo and NCTRC certification requirements, this course requires 560 hours of internship experience over a minimum of 14 consecutive weeks supervised by a CTRS. The internship experience is only offered in the summer and requires faculty approval. Minimum "C" required for RCRT majors.

**Prerequisites:** RCRT 4950 with a minimum grade of D-**Term Offered:** Summer**RCRT 4950 Recreation Therapy Internship I**

[5 credit hours]

In accordance with the University of Toledo and NCTRC certification requirements, this course requires 280 hours of internship experience over a minimum of 7 consecutive weeks supervised by a CTRS. The internship experience is only offered in the summer and requires faculty approval. Minimum "C" required for RCRT majors.

**RCRT 4960 Recreation Therapy Internship II**

[5 credit hours]

In accordance with the University of Toledo and NCTRC certification requirements, this course requires 280 hours of internship experience over a minimum of 7 consecutive weeks supervised by a CTRS. The internship experience is only offered in the summer and requires faculty approval. Minimum "C" required for RCRT majors.

**RCRT 4990 Independent Study In Recreation And Leisure Studies**

[1-3 credit hours]

This course provides students the opportunity to develop an independent learning experience in support of academic and/or professional interests. Minimum "C" required for RCRT majors.

**Term Offered:** Spring, Summer, Fall

## Religion (REL)

**REL 1220 World Religions**

[3 credit hours]

A study of the major religions of the world, with an emphasis on their histories, beliefs and practices

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, Multicultural Non-US Diversity, OT36 Arts and Humanities

**REL 2000 Introduction To Religion**

[3 credit hours]

Critical and thematic study of the concepts, values, practices and world-views intrinsic to the religious life.

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

**REL 2070 Early Judaism**

[3 credit hours]

Institutions, culture and religion from the earliest times through the Biblical period to the Medieval period.

**REL 2310 Old Testament/Tanakh**

[3 credit hours]

An examination of the history and ideas of the Jewish scriptures within the context of Judaism and their appropriation within Christian traditions.

**Term Offered:** Fall

Core Arts & Humanities, OT36 Arts and Humanities

**REL 2320 Judaism**

[3 credit hours]

An inductive introduction to the history, beliefs, and practices of Judaism, with an emphasis on various forms of Jewish culture and identity.

**Term Offered:** Spring, Fall**REL 2330 New Testament History And Ideas**

[3 credit hours]

Examination of the history and ideas of the New Testament.

**Term Offered:** Spring

Core Arts & Humanities, OT36 Arts and Humanities

**REL 2380 Topics In Catholic Thought**

[3 credit hours]

Critical examination of selected topics in contemporary Catholic thought and life.

**Term Offered:** Spring, Fall**REL 2410 Christianity**

[3 credit hours]

This course is designed to ground students with the basics of the Christian tradition, with particular focus on the contents of the bible and the dynamics of Christian history. Through careful reading of the assigned material, class discussion, and written assignments, students are expected to attain a wide-based knowledge of Christian self-understanding, values, and theology.

**Term Offered:** Fall**REL 2500 Islam**

[3 credit hours]

An introduction to the academic understanding of Islam. Topics may include; faith, rituals, law (Shari'h), jurisprudence (Figh), theology (Kalam), and stories from the Islamic heritage. Non-Western multicultural course.

**Term Offered:** Spring, Fall

Core Arts & Humanities, Multicultural Non-US Diversity, Multicultural US Diversity

**REL 2980 Special Topics In Religious Studies**

[3 credit hours]

Special topics courses. Course may be repeated for credit as topics vary.

**Term Offered:** Spring, Fall**REL 3000 Religious Studies Proseminar**

[1 credit hour]

This course enhances students' professional development in fields related to religious studies.

**REL 3080 Jewish Biblical Studies**

[3 credit hours]

An examination of the texts and methods of historical and contemporary Jewish scriptural studies.

**Term Offered:** Spring, Fall

**REL 3210 Ancient And Medieval Philosophy**

[3 credit hours]

A study of ancient and medieval philosophy from the pre-Socratics to Aquinas.

**Term Offered:** Fall**REL 3350 The Qur'an And Hadith**

[3 credit hours]

A study of the two main texts for Islamic belief and practice: Qur'an and the Hadith (the tradition of the Prophet Muhammad). Topics include their thematic structure, methods of interpretation, and their unique authority within Islam.

**REL 3420 Christian Ethical Perspectives**

[3 credit hours]

This course will study fundamental ethical concerns in Christian thought, with an extended consideration given to a particular Christian tradition determined by the instructor.

**Term Offered:** Spring**REL 3500 Eastern Thought**

[3 credit hours]

An examination of major philosophies of Asia and the Far East, their specific concerns and their relevance to contemporary problems.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**REL 3510 Comparative Religion: Living Non-Western Religions**

[3 credit hours]

Study of the major attitudes toward life, human existence and the world embodied in such major religions of the world as Buddhism, Confucianism, Hinduism, Islam and Taoism. Non-U.S. Diversity

**REL 3570 Philosophy Of Religion**

[3 credit hours]

A critical, philosophical exploration of questions about the nature of religion, including the existence and nature of God, the problem of evil, and the relation between faith and knowledge. Other topics may include the relation of religion to science and morality, as well as the role of religious experience and miracles in religious belief.

**Term Offered:** Spring, Fall**REL 3580 Contemporary Issues In Islam**

[3 credit hours]

An examination of key contemporary issues facing Islamic thought and culture, such as the changing and contested understandings of religious authority, jihad, role of women, courting, and family norms and the effects on all these of globalization and social media. Course may be repeated for credit as topics vary. Non-Western multicultural course.

**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**REL 3710 Literature Of The Old Testament**

[3 credit hours]

A study of the Old Testament from the literary point of view, including ancient poetry, history, romance, short story, hymn, prophecy and wisdom writing. Recommended: ENGL 2700 or 2800.

**Term Offered:** Spring, Summer**REL 3900 Seminar-Contemporary Religious Thought**

[3 credit hours]

A critical examination of selected topics in the area of religion.

**Term Offered:** Spring, Fall**REL 3980 Special Topics In Religious Studies**

[3 credit hours]

Special topics courses. Course may be repeated for credit as topics vary.

**Term Offered:** Spring, Fall**REL 4010 Islamic Law and Society**

[3 credit hours]

This course will survey Islamic law in historical and comparative modern contexts. This course will provide (a) basic introduction to the sources and methods of classical Islamic legal interpretation, (b) survey of the most pressing areas in which traditional Islamic norms remain relevant today—criminal law, family law, and commercial law, (c) the challenges and transformations introduced by colonialism, modernity, and the nation-state, and (d) comparison with the American law and the constitution, highlighting comparative interpretive methods such as originalism versus progressivism, and innovative dimensions of Islamic law such as legal pluralism, wide room for local custom, religious diversity, and restorative justice.

**Term Offered:** Spring**REL 4610 Religious Studies Topics In The Humanities**

[3 credit hours]

Cross listings with 4000-level courses offered in the humanities departments. Specific topics vary, and course may be repeated for credit as topics vary. Check course schedules for specific subject and prerequisites.

**Term Offered:** Spring, Fall**REL 4630 Religion, Violence and Peace**

[3 credit hours]

This seminar is a sustained exploration of whether religion is related to the occurrence of violence, peace or community-building, and if so, when and how.

**REL 4820 Anthropology Of Religion**

[3 credit hours]

A cross-cultural approach to the description and analyses of magical and religious beliefs and practices in Asia, Africa, Latin America and Indigenous North America.

**Prerequisites:** ANTH 2800 with a minimum grade of D-**Term Offered:** Spring, Fall

Multicultural Non-US Diversity

**REL 4900 Seminar In Religious Studies**

[3 credit hours]

Topics vary. Course may be repeated for credit as topics vary. See adviser for Seminar Request Form.

**Term Offered:** Spring, Summer, Fall**REL 4940 Internship In Religious Studies**

[1-6 credit hours]

Student is placed in a campus or community setting approved by the instructor of record to work on issues pertaining to religion, and analyzes verbally and in writing how religion functioned in this setting.

**Term Offered:** Spring, Summer, Fall**REL 4960 Senior Thesis for Honors**

[3 credit hours]

Prerequisite: Junior standing and consent of program director

**Term Offered:** Spring, Summer, Fall

**REL 4980 Special Topics In Religious Studies**

[3 credit hours]

Topics vary. Course may be repeated for credit as topics vary.

**Term Offered:** Spring, Fall**REL 4990 Independent Study In Religious Studies**

[1-4 credit hours]

Directed study in religious studies under the supervision of a religious studies instructor.

**Term Offered:** Spring, Fall

## Research and Measurement (RESM)

**RESM 4100 Educational Statistics**

[3 credit hours]

Introduction to major concepts of statistical description; central tendency, dispersion, and relative position and relationship. Inferential methods such as t-tests, one-way analysis of variance and multiple comparisons are also presented.

**Term Offered:** Spring, Summer, Fall**RESM 4200 Classroom Assessment**

[3 credit hours]

This course familiarizes preservice teachers with concepts and principles of classroom assessment. It examines formal and informal strategies for assessing student achievement and explores conceptual and practical issues in assessment and grading.

**Prerequisites:** Upper Division with a score of 1**Term Offered:** Spring, Fall

## Respiratory Care (RCBS)

**RCBS 3010 Respiratory Care Fundamentals**

[4 credit hours]

A study of the anatomy and physiology of the respiratory and cardiovascular systems, including the physics of gas exchange, ventilation, and blood flow.

**Corequisites:** RCBS 3020**Term Offered:** Summer**RCBS 3020 Respiratory Care Practice I**

[4 credit hours]

An introductory experience in the basic assessment and care of the patient with cardiopulmonary disease. Ethical issues, interpersonal communication, and infection control in the healthcare setting will also be covered.

**Corequisites:** RCBS 3010**Term Offered:** Summer**RCBS 3110 Respiratory Care Therapeutics I**

[4 credit hours]

Etiology, pathophysiology, clinical manifestations, and treatment of selected diseases of pulmonary and cardiovascular systems with emphasis on pharmacologic principles and agents used in the treatment of those diseases.

**Prerequisites:** (RCBS 3010 with a minimum grade of C and RCBS 3020 with a minimum grade of C)**Term Offered:** Fall**RCBS 3120 Respiratory Care Practice II**

[7 credit hours]

Didactic, laboratory, and introductory clinical experiences with a variety of equipment and procedures that are used to establish and maintain a patent airway, and to monitor and treat patients with cardiopulmonary diseases.

**Prerequisites:** (RCBS 3010 with a minimum grade of C and RCBS 3020 with a minimum grade of C)**Term Offered:** Fall**RCBS 3130 Cardiopulmonary Diagnostics I**

[4 credit hours]

Discussion of the theory and selected techniques used in cardiopulmonary diagnostics, including analysis of blood gases, cardiac rhythms, hemodynamic monitoring values, spirometry results, and chest x-rays.

**Prerequisites:** (RCBS 3010 with a minimum grade of C and RCBS 3020 with a minimum grade of C)**Term Offered:** Fall**RCBS 3200 Introduction to Critical Care**

[1 credit hour]

An introductory experience in the theory, initiation and practice of providing non-invasive and mechanical ventilation in a critical care setting.

**Prerequisites:** RCBS 3110 with a minimum grade of C and RCBS 3120 with a minimum grade of C and RCBS 3130 with a minimum grade of C**Term Offered:** Spring**RCBS 3210 Respiratory Care Therapeutics II**

[4 credit hours]

Continuation of RCBS 3110 with consideration of disease states of the pulmonary and cardiovascular systems not previously considered. Emphasis on analysis of assessment, diagnosis and treatment of individual patients by students.

**Prerequisites:** (RCBS 3110 with a minimum grade of C and RCBS 3120 with a minimum grade of C and RCBS 3130 with a minimum grade of C)**Term Offered:** Spring**RCBS 3220 Respiratory Care Practice III**

[7 credit hours]

Theoretical principles involved in the initiation, maintenance, and discontinuance of mechanical ventilation. Laboratory experiences with a variety of adult mechanical ventilators. Clinical experiences providing respiratory care for patients requiring mechanical ventilation.

**Prerequisites:** (RCBS 3110 with a minimum grade of C and RCBS 3120 with a minimum grade of C and RCBS 3130 with a minimum grade of C)**Term Offered:** Spring**RCBS 3230 Cardiopulmonary Diagnostics II**

[2 credit hours]

Classroom and field experiences in the theory and practice of selected cardiopulmonary diagnostic procedures including measures of pulmonary volumes, flows, gas distribution, and gas diffusion. Capnography, exercise testing, and specialized test regimens will also be covered.

**Prerequisites:** (RCBS 3110 with a minimum grade of C and RCBS 3120 with a minimum grade of C and RCBS 3130 with a minimum grade of C)**Term Offered:** Spring, Fall

**RCBS 3300 Advanced Cardiac Life Support**

[1 credit hour]

American Heart Association Advanced Cardiac Life Support course designed to aid in the management of cardiopulmonary emergencies. Students must have previous knowledge of cardiac pharmacology and rhythms, and current CPR certification.

**Term Offered:** Spring, Fall**RCBS 4140 Integrated Clinical Practice I**

[4 credit hours]

Clinical experiences in the acute care setting that requires the application of theory related to the diagnosis, treatment and management of adult, neonatal and pediatric patients with cardiopulmonary disease.

**Prerequisites:** (RCBS 3210 with a minimum grade of C and RCBS 3220 with a minimum grade of C and RCBS 3230 with a minimum grade of C)**Term Offered:** Summer, Fall**RCBS 4150 Neonatal/Pediatric Respiratory Care**

[4 credit hours]

A discussion of the etiology, pathophysiology and treatment of neonatal and pediatric disorders. Laboratory exercises designed to familiarize student with neonatal and pediatric resuscitation and ventilation.

**Prerequisites:** (RCBS 3210 with a minimum grade of C and RCBS 3220 with a minimum grade of C and RCBS 3230 with a minimum grade of C)**Term Offered:** Spring, Fall**RCBS 4160 Clinical Assessment**

[3 credit hours]

This course will provide the students with knowledge and enhance their critical thinking skills related to patient assessment and the development and modification of patient respiratory care plans.

**Prerequisites:** (RCBS 3210 with a minimum grade of C and RCBS 3220 with a minimum grade of C and RCBS 3230 with a minimum grade of C)**Term Offered:** Spring, Fall**RCBS 4240 Integrated Clinical Practice II**

[3 credit hours]

Clinical experiences with a primary focus on advanced skills used in the management of cardiopulmonary patients of all ages in the acute and subacute care settings.

**Prerequisites:** (RCBS 4150 with a minimum grade of C and RCBS 4140 with a minimum grade of C)**Term Offered:** Spring**RCBS 4510 Respiratory Care in Alternate Sites**

[3 credit hours]

The delivery of care to cardiopulmonary patients outside of the acute care facility will be discussed. Standards of care in addition to the funding of this care will be investigated. Special procedures in respiratory care will be presented.

**Term Offered:** Spring, Fall**RCBS 4700 Research Analysis In Respiratory Care**

[3 credit hours]

Review of appropriate statistical knowledge required to analyze applied/clinical and basic published research. Includes a review of the elements of basic research design, reliability and validity, and critical review of cardiopulmonary research literature.

**Term Offered:** Spring, Fall**RCBS 4800 Issues In Professional Practice**

[3 credit hours]

A capstone course designed to prepare the senior student for professional practice. Decision-making skills in complex clinical situations are developed through the use of clinical simulations and student case presentations.

**Prerequisites:** (RCBS 4140 with a minimum grade of C and RCBS 4150 with a minimum grade of C and RCBS 4160 with a minimum grade of C) and RCBS 4700 with a minimum grade of C**Term Offered:** Spring, Fall**RCBS 4810 Preparation For Professional Practice**

[1 credit hour]

This laboratory course is designed to complement the corequisite RCBS 4800 lecture course. Emphasis on enhancing the students' ability to integrate complex cognitive and psychomotor skills in preparation for professional practice.

**Term Offered:** Spring**RCBS 4990 Independent Study**

[1-4 credit hours]

Independent study of specific topics and issues under the supervision of a faculty member of the department of health promotion and human performance. The student will participate in independent reading, clinical/laboratory research, field experience and other similar activities. Independent study course must have a specialty; seminar sheet required.

**Term Offered:** Spring

## School Psychology (SPSY)

**SPSY 3100 Psychological Testing and Assessment**

[3 credit hours]

This course provides an overview of the major topics in the field of psychological testing, such as norms, statistics, reliability, validity, test development, defining and measuring intelligence, educational assessment, personality assessment, and clinical assessment. The main objective of this course is to develop the student's knowledge about the variables, objectives, and effects of psychological testing. After completing this course students will, understand terminology and concepts; list criteria for test selection; describe standardized tests and measurement techniques; discuss issues involved in testing.

**Term Offered:** Spring, Fall

## Social Work (SOCW)

**SOCW 1030 Introduction To Social Welfare**

[3 credit hours]

Introduction to the social welfare institution, its history, relation to social values, social welfare laws and programs, and the system's characteristic of service delivery. The nature and causes of social problems in the United States, such as poverty, crime, mental illness, homelessness, ageism, sexism, and racism are examined through conservative, liberal and progressive perspectives, including how these perspectives have impacted social policy development. Students will explore the inter-relatedness of policy, problems, and programs. C or better is required for majors.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity

**SOCW 2010 Survey Of The Social Work Profession**

[4 credit hours]

This course provides an opportunity for the student to explore the dynamics of the social work profession. The student will examine various components of social work, including an overview of the strengths perspective, systems theory, ethics, client populations served, roles of social workers who serve these populations, and APA style of professional writing. The course also includes sixty hours of supervised field experience and directed classroom discussion connecting field experience to social work practice. NOTE: Students will need to provide their own transportation to the off-site field experience as a requirement for this course.

**Prerequisites:** SOCW 1030 (may be taken concurrently) with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**SOCW 2210 Field Experience And Lab I**

[3 credit hours]

Supervised field experience. Ninety hours evenly distributed with weekly directed classroom discussion of reflecting the relationship of field experience to social work practice. This course meets the WAC requirements, and journaling and written classroom exercises will be required.

**Prerequisites:** SOCW 2010 with a minimum grade of C

**Term Offered:** Spring, Summer, Fall

**SOCW 3040 Social Work With Older Adults**

[3 credit hours]

History and development of practice with older adults. Trends in aging, services for older adults, health care, social security, retirement, elder abuse, substitute care decision, hospice, loss, death and dying.

**Term Offered:** Spring, Summer

**SOCW 3060 Social Work Ethics**

[3 credit hours]

Examination of social work values and their professional implications. Provision of working knowledge of Social Work Code of Ethics and licensing and subsequent professional responsibilities. Integration of theoretical models with practice situations.

**Term Offered:** Spring, Summer

**SOCW 3070 Child Welfare I**

[3 credit hours]

Child welfare history. Knowledge, concepts and skill development concerning child maltreatment and protection, risk assessment and family-centered services.

**Prerequisites:** SOCW 2010 with a minimum grade of C

**Term Offered:** Fall

**SOCW 3080 Women In Poverty**

[3 credit hours]

Provides an understanding of women's poverty and its perpetuation through marriage and divorce, women's work and wages, welfare, children, child support and the economics of the unpaid women's labor.

**Term Offered:** Spring, Summer, Fall

**SOCW 3090 Social Work Perspectives On Culture And Oppression**

[3 credit hours]

Focus is on vulnerable and oppressed groups who are among social welfare consumers. Cultural characteristics and group strengths, needs, priorities and experiences within the context of social work are also explored.

**Prerequisites:** SOCW 2010 with a minimum grade of C

**Term Offered:** Spring, Fall

**SOCW 3110 Social Work Practice I**

[3 credit hours]

An overview of generalist social work practice with various system sizes. Emphasizes strengths, empowerment, social and economic justice, ethical practice, and examination of self in relation to professional social work.

**Prerequisites:** SOCW 2010 with a minimum grade of C

**Term Offered:** Fall

**SOCW 3120 Social Work Interviewing And Recording**

[4 credit hours]

Develops skills needed for the generalist social work interview and appropriate recording techniques. Integrates computer simulation, role-play and video recording for a participatory learning experience.

**Prerequisites:** SOCW 3110 with a minimum grade of C

**Term Offered:** Spring

**SOCW 3170 Child Welfare II**

[3 credit hours]

Addresses the developmental and permanence needs of children, effects of maltreatment on children, placement issues, separation, reunification and adoption. Includes child welfare services for children with developmental disabilities.

**Prerequisites:** (SOCW 3070 with a minimum grade of C and SOCW 2010 with a minimum grade of C)

**Term Offered:** Spring

**SOCW 3210 Human Behavior in the Soc Environment I**

[3 credit hours]

Theoretical social-work related approaches to understanding human behavior and related biological, psychological, social, cultural and environmental factors affecting individuals, families and groups, from infancy to adolescence, within the context of diversity.

**Prerequisites:** SOCW 2010 with a minimum grade of C

**Term Offered:** Fall

**SOCW 3220 Human Behavior In Social Environment II**

[3 credit hours]

Theoretical social work - related approaches to understanding human behavior and related biological, psychological, social, cultural and environmental factors affecting individual, family and group behavior, from young adulthood to old age.

**Prerequisites:** SOCW 3210 with a minimum grade of C

**Term Offered:** Spring

**SOCW 3230 Human Behavior in the Social Environment III**

[3 credit hours]

This course provides a view of behavior of larger systems including groups, organizations, and communities through a strengths perspective, focusing on social and economic justice, and the values of the social work profession.

**Prerequisites:** SOCW 3210 with a minimum grade of C

**Term Offered:** Spring, Fall



**SOCW 3300 Social Policy And Legislation**

[3 credit hours]

An examination of current social welfare issues and theories and the significance to the social, economic and political factors which influence policymaking and implementation.

**Prerequisites:** PSC 1200 with a minimum grade of C**Term Offered:** Summer, Fall**SOCW 3410 Social Work Research Practicum I**

[3 credit hours]

Presentation of basic methods used in social work research. Practice based methods are emphasized. Course content will focus on scientific methods of building knowledge for evidence-based social work practice.

**Prerequisites:** SOCW 2010 with a minimum grade of C**Term Offered:** Fall**SOCW 3420 Social Work Research Practicum II**

[3 credit hours]

Develop student competency in use of statistical applications in applied social work research. Entails continuation and completion of community-based research project started in Research Practicum I.

**Prerequisites:** SOCW 3410 with a minimum grade of C**Term Offered:** Spring**SOCW 3510 Interpersonal Practice with Lesbian, Gay, Bisexual, Transgender and Queer Individuals**

[3 credit hours]

This course will provide an introduction and overview of sexual orientation and gender identity and expand understanding of how to implement affirmative models of practice with LGBTQ individuals, families and communities. Course content will include: perspectives on gender, identity formation, impact of homophobia, biphobia, and transphobia, affirming interventions with lesbian, gay, bisexual and transgendered persons, families, youth, communities and aging; and specific challenges facing the LGBT communities such as homelessness, domestic violence, bullying, and policy.

**Term Offered:** Spring, Summer, Fall**SOCW 3520 Human Animal Interaction, Health and Wellness**

[3 credit hours]

The majority of households in the United States have a companion animal. This course provides an overview of how human-animal interactions (HAI) and the human-animal bond (HAB) impact human health and well-being. Topics include: the social, physical and emotional/psychological impacts across the lifespan; therapeutic roles of animals; animal welfare and ethical considerations; and the connection between violence toward people and violence toward animals.

**Term Offered:** Spring, Summer, Fall**SOCW 3530 Health Care Social Work Experiences with Interprofessional Teaming**

[1-3 credit hours]

Students will be introduced to the unique demands of health care social work (3 credits more content and more assignments). Students will utilize generalist skills developed in their BSW program to negotiate the interdisciplinary classroom by participating in real-world problem solving and simulations by joining students from across the University of Toledo campuses and the free clinic to learn how to be an integral part of health care with an emphasis on just service delivery.

**Term Offered:** Fall**SOCW 4120 Social Work Practice II**

[3 credit hours]

Provides advanced theory and skill development as a generalist social worker with organizations and communities. Emphasis is on a strengths and empowerment perspective focused on social and economic justice.

**Prerequisites:** SOCW 3110 with a minimum grade of C and SOCW 3120 with a minimum grade of C**Term Offered:** Fall**SOCW 4130 Social Work Practice III**

[3 credit hours]

Provides advanced theory and skill development as a generalist social worker with individuals, families and groups. Emphasis is on a strengths and empowerment perspective focused on social and economic justice.

**Prerequisites:** SOCW 4120 with a minimum grade of C and SOCW 4200 with a minimum grade of C and SOCW 4220 with a minimum grade of C**Term Offered:** Spring**SOCW 4200 Field Seminar II**

[1 credit hour]

Integration of field experience and proactive principles.

**Corequisites:** SOCW 4120, SOCW 4220**Term Offered:** Fall**SOCW 4210 Field Seminar III**

[1 credit hour]

Integration of field experience and proactive principles.

**Prerequisites:** SOCW 4120 with a minimum grade of C and SOCW 4200 with a minimum grade of C and SOCW 4220 with a minimum grade of C**Corequisites:** SOCW 4230**Term Offered:** Spring**SOCW 4220 Social Work Field Experience II**

[5 credit hours]

A professional experience in generalist social work practice with an integration of classroom learning with practice in a social agency. Must be taken in successive semesters during a single academic year. Application for entry to field placement must be submitted to social work office during spring semester prior to fall placement.

**Corequisites:** SOCW 4200**Term Offered:** Fall**SOCW 4230 Field Experience III**

[5 credit hours]

A professional experience in generalist social work practice with an integration of classroom learning with practice in a social agency. Must be taken in successive semesters during a single academic year. Application for entry to field placement must be submitted to social work office during spring semester prior to fall placement.

**Prerequisites:** SOCW 4220 with a minimum grade of C and SOCW 4200 with a minimum grade of C and SOCW 4120 with a minimum grade of C**Corequisites:** SOCW 4210**Term Offered:** Spring**SOCW 4980 Special Issues In Social Work**

[1-3 credit hours]

Courses on various social work specialties. May be repeated in different topics.

**Term Offered:** Spring, Summer, Fall

**SOCW 4990 Independent Study In Social Work**

[1-3 credit hours]

Designed for advanced students in social work to pursue supervised independent study in unlisted subject areas or to continue course work in greater depth. Written proposal required.

**Term Offered:** Spring, Summer, Fall

## Sociology (SOC)

**SOC 1010 Introduction To Sociology**

[3 credit hours]

(not for major credit) Sociological topics regarding social behavior, institutional dynamics and social change are examined, and the principles and basic concepts used by sociologists are taught.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

**SOC 1020 Social Problems**

[3 credit hours]

(Not for major credit) Introduces students to the sociological perspective through the analysis of various social problems including inequality, population, environment, workplace and deviant behavior.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, OT36 Social Science

**SOC 2000 Proseminar In Sociology I**

[1 credit hour]

Students are introduced to the academic and professional nature of Sociology. Topics covered include professional socialization, honor theses, portfolio construction, preparation for graduate studies, and career development.

**Term Offered:** Spring, Fall**SOC 2150 The Family and Society**

[3 credit hours]

Examines evolving family structures, focusing on the impact that cultural, political, and social factors have on private personal relationships and the public social institution of the family.

**Term Offered:** Spring, Fall**SOC 2410 Communities - Writing Across the Curriculum**

[3 credit hours]

Examination of various forms and definitions of community with special focus on what the conceptualization of community means for how community issues are identified and addressed.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences

**SOC 2500 Women's Roles: A Global Perspective**

[3 credit hours]

The course focuses on the current and evolving social, economic and political status of women in the United States and selected non-Western societies. For both men and women students.

Core Social Sciences, Multicultural Non-US Diversity, OT36 Social Science

**SOC 2640 Race, Class, And Gender**

[3 credit hours]

Introduction to the study of race, class and gender as factors in American stratification.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity, OT36 Social Science

**SOC 2660 Racial and Ethnic Minorities in the United States**

[3 credit hours]

This course is a sociological exploration of American racial and ethnic groups. Emphasis is placed on the social construction of race and ethnicity and patterns of intergroup interactions. The historical experiences of selected groups are examined with emphasis on structural inequalities.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity

**SOC 2750 Sociology Of Sport**

[3 credit hours]

This course examines sport as a microcosm of our society, exploring many sociological issues (socialization, social institutions, and inequality) within the framework of sport that exist in society as whole.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences

**SOC 2900 African American Culture**

[3 credit hours]

A survey of the sociohistorical and cultural factors related to the African American experience in the United States.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity, OT36 Social Science

**SOC 2980 Special Topics**

[3 credit hours]

Examination of a special topical area in sociology. May be repeated on different topics.

**SOC 3270 Social Research Methods**

[3 credit hours]

Introduction to procedures used in the various phases of sociological research.

**Term Offered:** Spring, Fall**SOC 3290 Social Statistics**

[3 credit hours]

Study of major statistical procedures and techniques in sociology.

**Prerequisites:** MATH 1180 with a minimum grade of D- or MATH 1200 with a minimum grade of D- or MATH 1210 with a minimum grade of D- or MATH 1320 with a minimum grade of D- or MATH 1330 with a minimum grade of D- or MATH 1340 with a minimum grade of D- or MATH 1730 with a minimum grade of D- or MATH 1750 with a minimum grade of D- or MATH 1830 with a minimum grade of D- or MATH 1850 with a minimum grade of D- or MATH 2450 with a minimum grade of D- or MATH 2600 with a minimum grade of D- or MATH 2640 with a minimum grade of D-

**Term Offered:** Spring, Fall**SOC 3640 Social Inequality**

[3 credit hours]

This course examines the bases, varieties and consequences of systems of inequality, including the development of and changes in inequality patterns in the US and other societies.

**Term Offered:** Spring, Summer, Fall**SOC 3800 Social Psychology**

[3 credit hours]

An introduction to theory and research concerning social influences on the experience and behavior of individuals. Includes interaction patterns, interpersonal and intergroup relations.

**Term Offered:** Spring, Summer, Fall

**SOC 3890 Ecotourism: Studies of the Africana World**

[3 credit hours]

Introduce students to the field of ecotourism studies and specific challenges of community development and sustainability. The course covers ecotourism in the Africana world of Africa, the Caribbean, and Latin America.

**Term Offered:** Spring, Fall**SOC 4000 Proseminar In Sociology II**

[2 credit hours]

Discussion among faculty and students devoted to the study of Sociology with a special focus on the development of a professional portfolio for graduate work or career.

**Prerequisites:** SOC 2000 with a minimum grade of D-**Term Offered:** Spring, Fall**SOC 4040 Classical Theory**

[3 credit hours]

Foundations of social theory including works by Marx, Weber, Durkheim and Simmel as well as other classical theorists.

**Term Offered:** Spring, Fall**SOC 4100 Community Organizing and Development**

[3 credit hours]

This course focuses on attempt of communities to regain power and wealth lost through urban disinvestment occurring since World War II. The course will involve numerous practical workshops to learn how to do community organizing and community development and will include information on Toledo case studies.

**Term Offered:** Spring, Fall**SOC 4160 Health And Gender**

[3 credit hours]

An examination of sex and gender as a predisposing factor of health status, health behavior, health care delivery, and the structure and posture of health care professionals.

**Term Offered:** Spring, Summer, Fall**SOC 4180 Medical Sociology**

[3 credit hours]

An analysis of the sociocultural factors in health and illness, and in medical and paramedical services, and in the field of health practice as a social institution.

**Term Offered:** Spring, Fall**SOC 4340 Population And Society**

[3 credit hours]

Examination of the interaction among variables of population (fertility, mortality and migration) and other aspects of societal organization.

**Term Offered:** Fall**SOC 4440 People, Population, and Society: Demographic Analysis**

[3 credit hours]

Methods of population analysis, including examination and evaluation of data sources.

**Term Offered:** Spring, Summer**SOC 4450 Exploring the City**

[3 credit hours]

Examination of how cities are organized with special attention to economic, political, racial/ethnic, and sex/gender dynamics.

**Term Offered:** Spring, Fall**SOC 4530 Qualitative Approaches in Social Science Research**

[3 credit hours]

This course examines qualitative methods used in social science research. Focusing on ethnographic and qualitative methods, the course provides students the skills necessary to design and conduct qualitative research studies.

**SOC 4560 Fieldwork in the Community**

[6 credit hours]

This course involves the student in meaningful social research at the community level. The student is introduced to methods in fieldwork in the social sciences.

**Term Offered:** Spring, Summer, Fall**SOC 4610 Sociology Of Organizations**

[3 credit hours]

Study of the structures, functions, and processes of various types of organizations. Topics include bureaucracy, organizational leadership and management, and organizational culture.

**Term Offered:** Spring**SOC 4710 Criminology**

[3 credit hours]

Crime and criminal behavior: nature, types and extent of crime, societal reactions; problems in research and theory, prevention, control and treatment.

**Term Offered:** Summer**SOC 4720 Deviant Behavior**

[3 credit hours]

Study and analysis of the nature, meaning and process of deviant behavior in terms of social norms, control and societal reaction.

**Term Offered:** Summer, Fall**SOC 4760 Juvenile Delinquency**

[3 credit hours]

Delinquency and delinquent behavior, including definitions, extent, process, types and causes; methods of prevention, protective control and treatment; institutional and non-institutional facilities and services.

**SOC 4810 Gender In Cross-Cultural Perspective**

[3 credit hours]

Analysis of gender stratification and its impact on culture in various nations and across ethnic groups in the United States.

Multicultural Non-US Diversity

**SOC 4830 Social Movements**

[3 credit hours]

This course analyzes how and why social protest movements form, and how and why they succeed or fail. Attention will be given to post-World War II social movements, including current examples.

**Term Offered:** Spring, Fall

**SOC 4840 Globalization**

[3 credit hours]

This course takes an interdisciplinary approach to studying globalization – increased integration and interdependence between nations. We will start by looking at the historical context of globalization, showing this process is not necessarily something new. From there we will focus on four dimensions of globalization: economic, political, demographic, and cultural. We also will stress the interconnectedness of these dimensions. We conclude by looking at reactions and resistance to globalization, including terrorism and nationalism.

**Term Offered:** Spring**SOC 4910 Directed Research In Sociology**

[1-3 credit hours]

Student-selected research topic under the supervision of a sociology faculty member. Permission to enroll is contingent on the instructor's acceptance of the student's research proposal.

**Prerequisites:** SOC 3270 with a minimum grade of D-**SOC 4920 Directed Readings In Sociology**

[1-3 credit hours]

Written proposal required. May be repeated for additional credit. For majors wishing to continue course work in greater depth or seeking contact with unlisted subject areas.

**Term Offered:** Spring, Fall**SOC 4940 Internship in Sociology**

[3 credit hours]

**SOC 4960 Honors Thesis**

[3-6 credit hours]

**SOC 4980 Special Topics In Sociology**

[3 credit hours]

Sociological examination of a developing and/or important social issue or sociological topic. May be repeated for different specialized topics.

**Term Offered:** Spring, Summer, Fall**SOC 4990 Independent Study-Sociology**

[1-3 credit hours]

## Spanish (SPAN)

**SPAN 1080 Culture & Commerce In The Spanish-Speaking World**

[3 credit hours]

A study of the Hispanic world with emphasis on the relationship between its culture and business and economic institutions and practices. Taught in English. (Not for major credit)

**Term Offered:** Spring, Fall

Core Arts &amp; Humanities

**SPAN 1090 Culture Of Latin America**

[3 credit hours]

A study of selected artistic, literary, philosophical, political and social aspects of present day Latin American culture. Taught in English. (Not for major credit)

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities, Multicultural Non-US Diversity

**SPAN 1100 Culture Of Spain**

[3 credit hours]

A study of the events, people and movements that have formed Spain.

Taught in English. (Not for major credit)

**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**SPAN 1110 Elementary Spanish I**

[4 credit hours]

Practice in using and understanding Spanish to develop listening, speaking, reading and writing skills. Pronunciation, grammar, vocabulary and cultural topics. Lab practice required. (Not for major credit)

**Term Offered:** Spring, Summer, Fall**SPAN 1120 Elementary Spanish II**

[4 credit hours]

A comprehensive introductory course in Spanish language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (Not for major credit)

**Prerequisites:** SPAN 1110 with a minimum grade of D- or Spanish Language Placement with a score of 1120**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**SPAN 2140 Intermediate Spanish I**

[3 credit hours]

Intermediate-level review and development of aural comprehension, speaking, reading and writing skills. Topics in the cultures of the Spanish-speaking world. Lab practice required. (Not for major credit)

**Prerequisites:** SPAN 1120 with a minimum grade of D- or SPAN 1500 with a minimum grade of D- or Spanish Language Placement with a score of 2140**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**SPAN 2150 Intermediate Spanish II**

[3 credit hours]

Further review and development of aural comprehension, speaking, reading and writing skills. Topics in the cultures of the Spanish-speaking world. Lab practice required. (Not for major credit)

**Prerequisites:** SPAN 2140 with a minimum grade of D- or Spanish Language Placement with a score of 2150**Term Offered:** Spring, Summer, Fall

Core Arts &amp; Humanities

**SPAN 2190 Study Abroad**

[1-3 credit hours]

Designed to permit and encourage non-majors to spend time in a country where Spanish is spoken. Credit will be given in accordance with established departmental procedures. (Not for major credit.)

**Term Offered:** Summer**SPAN 2980 Special Topics in Spanish Studies**

[0-6 credit hours]

Study of a selected topic in Spanish language, literature or culture. May be repeated when topic varies.

**Term Offered:** Spring

**SPAN 3000 Spanish Grammar**

[3 credit hours]

A study of all Spanish grammatical aspects with special emphasis on those which present greater difficulty for the English speaker.

**Prerequisites:** SPAN 2150 with a minimum grade of D- or Spanish Language Placement with a score of 3000

**Term Offered:** Spring, Fall

**SPAN 3010 Conversation And Composition I**

[3 credit hours]

Practice in speaking, listening, reading and writing. Vocabulary and fluency building in Spanish with special emphasis on oral practice.

**Prerequisites:** SPAN 2150 with a minimum grade of D- or Spanish Language Placement with a score of 3000

**Term Offered:** Spring, Fall

**SPAN 3020 Conversation And Composition II**

[3 credit hours]

Practice in speaking, listening, reading and writing. Vocabulary and fluency building in Spanish with special emphasis on writing practice. A writing-intensive course.

**Prerequisites:** SPAN 2150 with a minimum grade of D- or Spanish Language Placement with a score of 3000

**Term Offered:** Spring, Fall

**SPAN 3170 Business Spanish**

[3 credit hours]

An introduction to the language of the Hispanic world peculiar to the areas of business and commerce.

**Prerequisites:** SPAN 2150 with a minimum grade of D-

**Term Offered:** Fall

**SPAN 3210 Survey Of Spanish Literature I**

[3 credit hours]

A survey of Spanish literature from its origins through the seventeenth century.

**Prerequisites:** SPAN 2150 with a minimum grade of D-

**Term Offered:** Fall

**SPAN 3220 Survey Of Spanish Literature II**

[3 credit hours]

A survey of Spanish literature from the eighteenth century to the present.

**Prerequisites:** SPAN 2150 with a minimum grade of D-

**Term Offered:** Spring

**SPAN 3270 Survey Of Latin American Literature I**

[3 credit hours]

The literature of Latin America from the Colonial period to the end of the nineteenth century.

**Prerequisites:** SPAN 2150 with a minimum grade of D-

**Term Offered:** Fall

**SPAN 3280 Survey Of Latin American Literature II**

[3 credit hours]

The literature of Latin America from the beginning of the twentieth century to the present.

**Prerequisites:** SPAN 2150 with a minimum grade of D-

**Term Offered:** Spring

**SPAN 3410 Spanish Culture And Civilization**

[3 credit hours]

A study of the events, people and movements that have formed Spain. Attention is also given to the nation's contemporary life-style and culture.

**Prerequisites:** SPAN 2150 with a minimum grade of D-

**Term Offered:** Spring

**SPAN 3420 Latin American Civilization**

[3 credit hours]

A study of Latin America's contributions to world culture in such fields as architecture, painting, sculpture, music, literature, folklore, sciences, philosophy and education.

**Prerequisites:** SPAN 2150 with a minimum grade of D-

**Term Offered:** Spring

**SPAN 3980 Special Topics in Spanish Studies**

[0-6 credit hours]

Study of a selected topic within Spanish studies. May be repeated for credit when topic varies.

**SPAN 4000 Advanced Spanish Grammar**

[3 credit hours]

An advanced study of Spanish grammar in preparation for higher levels of study in the language and for its use in professional pursuits.

**Term Offered:** Spring, Fall

**SPAN 4010 Syntax And Stylistics**

[4 credit hours]

A thorough study of the grammatical structure of Spanish with special attention to stylistic problems.

**Prerequisites:** (SPAN 3000 with a minimum grade of D- and SPAN 3010 with a minimum grade of D- and SPAN 3020 with a minimum grade of D-)

**Term Offered:** Spring, Fall

**SPAN 4060 Translation & Interpretation In Spanish**

[3 credit hours]

A study of the techniques of translation and interpretation as they relate to English and Spanish based on a contrastive analysis of the two languages, both in theory and practice.

**Prerequisites:** SPAN 4010 with a minimum grade of D-

**Term Offered:** Spring

**SPAN 4070 History Of The Spanish Language**

[3 credit hours]

A study of the development of the Spanish language from Vulgar Latin to the present, illustrated with selected texts.

**Term Offered:** Spring

**SPAN 4110 Introduction To Spanish Linguistics**

[4 credit hours]

Basic concepts of linguistics as applied to the study of the Spanish language and its dialectal systems. Emphasis on phonetics, phonology, morphology, syntax and semantics.

**Term Offered:** Spring, Fall

**SPAN 4120 Teaching Colloquia**

[3 credit hours]

A course in the theory of second language acquisition and practice of teaching foreign / second languages in general.

**Term Offered:** Spring, Summer, Fall

**SPAN 4190 Study Abroad**

[1-12 credit hours]

The course permits the Spanish major or minor to spend time in a country where Spanish is spoken. Credit awarded in accordance with established departmental procedures.

**Prerequisites:** SPAN 3020 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

**SPAN 4250 Latin American Short Story**

[3 credit hours]

Development of the Latin American short story from its origins with special emphasis on the contemporary authors such as Allende, Borges, Cortazar, Garcia Marquez and Rulfo among others.

**Prerequisites:** SPAN 3020 with a minimum grade of D-

**Term Offered:** Fall

**SPAN 4820 Modern Spanish Drama**

[3 credit hours]

Critical readings of Spanish drama from Romanticism to the latest contemporary trends.

**SPAN 4830 Hispanic Cinema**

[3 credit hours]

Critical viewings of Spanish-language films from Spain and the Americas. Emphasis on cultural criticism.

**Term Offered:** Spring, Fall

**SPAN 4910 Honors Research In Spanish**

[3 credit hours]

Independent research in special topics. May be repeated once for credit.

**SPAN 4940 Internship in Spanish**

[0-12 credit hours]

Educational work experience, using Spanish, in a pre-approved professional field.

**Term Offered:** Spring, Fall

**SPAN 4980 Special Topics**

[3 credit hours]

Study and research in specific areas or authors with considerable reading of Spanish texts plus written reports in Spanish.

**Term Offered:** Spring, Fall

## Special Education (SPED)

**SPED 2040 Perspectives In The Field Of Exceptionalities**

[3 credit hours]

Synthesis of the cross-categorical components required of special education. Issues addressed: causes and characteristics for disabling conditions and issues related to persons with disabilities, i.e., identification, intervention strategies, educational settings. Role of professionals in the field of special education.

**Term Offered:** Spring, Summer, Fall

**SPED 3130 Linguistic Analysis**

[3 credit hours]

Identification and evaluation of language usage. Course focuses upon development of competence for the analysis of semantic and syntactic components of language. Some pragmatic analysis is included. Lab required.

**Term Offered:** Spring, Fall

**SPED 3670 American Sign Language I**

[3 credit hours]

Principles of manual communication. Course builds an expressive and receptive vocabulary of at least 1,000 signs in American Sign Language (ASL) and Pidgin Signed English. Ten hours of lab required.

**Term Offered:** Summer, Fall

**SPED 3680 American Sign Language II And Basics Of Interpreting**

[3 credit hours]

Emphasis on fluency development in manual communication. Study of various models of interpreting and transliterating processes.

**Prerequisites:** SPED 3670 with a minimum grade of D-

**Term Offered:** Spring, Summer

**SPED 3690 American Sign Language III**

[4 credit hours]

American Sign Language III is designed to continue the development of proficiency in using the language and understanding the culture of the Deaf. Student will gain knowledge and skill in applying approximately 900 additional vocabulary words. Students will advance in the complexity of sentence structure and grammatical structures including classifiers, specifier, verb modulations and aspects, special referencing, pluralizations and the importance of facial expressions.

**Prerequisites:** SPED 3680 with a minimum grade of D-

**Term Offered:** Summer, Fall

**SPED 3700 American Sign Language IV**

[4 credit hours]

American Sign Language IV is designed to continue the development of proficiency in using the language and understanding the culture of the Deaf. Student will gain knowledge and skill in applying approximately 900 additional vocabulary words.

**Prerequisites:** (SPED 3670 with a minimum grade of C and SPED 3680 with a minimum grade of C and SPED 3690 with a minimum grade of C)

**Term Offered:** Spring, Summer

**SPED 4010 Atypical Development In Early Childhood: Implications For Development**

[3 credit hours]

Factors that contribute to atypical development in early childhood, appropriate intervention models and implications of delay on young children's development.

**SPED 4060 Specialized Intervention In Infancy And Early Childhood**

[3 credit hours]

Atypical infant, toddler and early childhood development examined. Intervention strategies in home, school and specialized environments, which are family-centered and developmentally appropriate, will be addressed. Forty (40) clock hour practicum required.

**Prerequisites:** Upper Division with a score of 1

**Term Offered:** Fall

**SPED 4080 Curriculum Adaptations & Strategies In Early Childhood Education**

[3 credit hours]

Curriculum models and intervention strategies which facilitate the cognitive, academic, social, language, self-help and lay skills of children with disabilities in preschool and primary grades will be examined.

**Prerequisites:** Upper Division with a score of 1 and CIEC 3200 with a minimum grade of D- and CIEC 4340 with a minimum grade of D-

**Term Offered:** Spring, Fall

**SPED 4100 Practicum in Special Education**

[1 credit hour]

Practicum is a supervised opportunity for students to gain experience in the classroom and other settings that provide direct instruction to children and youth with disabilities. Techniques designed to increase task engagement/learning and facilitate inclusion of students with special needs into the general education classroom will be explored and practiced. These experiences assist students in acquiring the knowledge and skills needed to function well as an educator in a changing and diverse society. Further, activities will assist students in acquiring knowledge of the field of special education and related areas of inquiry; an understanding of learners and learning processes; knowledge of effective instructional technology necessary for professional practice; human relations skills needed to work effectively in both professional and community roles; commitment to active, ethical involvement in the community and in the teaching profession; and knowledge of professional ethical and legal issues affecting educators.

**Prerequisites:** Upper Division with a score of 1**Corequisites:** SPED 4110, SPED 4120, SPED 4370**Term Offered:** Spring, Fall**SPED 4110 Curriculum And Methodology For Students With Moderate Educational Needs**

[3 credit hours]

This course focuses on community-referenced functional curricula approaches to teaching students with moderate educational needs. Topics include inclusionary activities, community-based instruction, social skills.

**Prerequisites:** Upper Division with a score of 1**Term Offered:** Spring, Fall**SPED 4120 Curriculum And Methodology For Students With Intensive Educational Needs**

[3 credit hours]

Examination of appropriate curriculum models, instructional strategies and adaptations, and related behavior problems for students with intensive educational needs. A transdisciplinary team approach is explored.

**Prerequisites:** SPED 4110 with a minimum grade of D- and SPED 4240 with a minimum grade of D-**Corequisites:** SPED 4100**Term Offered:** Spring**SPED 4210 AAC for Young Children with Disabilities**

[3 credit hours]

This course will provide an overview of alternative or augmentative modes of communication for children who are unable to meet their daily communication needs through natural modes such as speech, gestures or handwriting.

**Term Offered:** Summer, Fall**SPED 4250 Transition Process from High School to Post-Secondary Settings for Students with Disabilities**

[3 credit hours]

This course prepares the pre-service special education interventionist to support students with disabilities during the transition from high school to post-secondary settings. The course will address several issues regarding transition, including legislation, assessment and planning, self-determination skills, and evidence-based instructional strategies.

**Prerequisites:** Upper Division with a score of 1**Term Offered:** Fall**SPED 4260 Family And Professional Partnership In Special Education**

[3 credit hours]

Effective parent and professional partnerships will be explored. Interpersonal communication skills, legal issues, effective models for home-school communication, and differences in culture, values and family expectations will be discussed.

**Prerequisites:** Upper Division with a score of 1**Term Offered:** Summer, Fall**SPED 4340 Effective Management Of Students With Special Needs In Educational Settings**

[3 credit hours]

Techniques for managing student behavior. Topics include analyzing environments and problems, implementing and evaluating interventions, data collection and analysis, and handling aggression and noncompliance. Case-backed approach. Integrated field component required.

**Prerequisites:** Upper Division with a score of 1 and SPED 4110 with a minimum grade of D- and SPED 4240 with a minimum grade of D-**Term Offered:** Spring**SPED 4370 Curriculum And Methods For Students With Mild Educational Needs**

[3 credit hours]

Study of causes and characteristics of mild disorders. Discussion will be on theoretical considerations as well as intervention approaches pertinent to the school and clinic setting. Taken concurrently with SPED 4100 and SPED 4110.

**Prerequisites:** Upper Division with a score of 1**Term Offered:** Spring**SPED 4450 Methods of Teaching Students With Emotional Disturbance**

[3 credit hours]

This course provides evaluation and application techniques of research-based methodologies for teaching students with emotional disturbance in school-based settings within the least restrictive environment.

**Prerequisites:** SPED 4340 with a minimum grade of D-**Term Offered:** Fall**SPED 4600 Professional Reflective Seminar**

[3 credit hours]

This seminar is taken concurrently with student teaching/internship. Students will evaluate their behavior in relation to the classroom environment. The students will develop alternative strategies in the educational setting.

**Prerequisites:** Upper Division with a score of 1**Term Offered:** Spring, Fall**SPED 4900 Seminar In Special Education**

[1-5 credit hours]

Seminar provides students with the opportunity to explore, as a group, specific topics with a faculty member. Current issues in the area of Special Education will be the focus.

**Term Offered:** Spring, Summer, Fall

**SPED 4930 Internship/Student Teaching In Special Education**

[9 credit hours]

This course provides undergraduate pre-service special education interventionists with a full-time student teaching experience with students with disabilities. Teaching experiences may occur in classrooms found within the continuum of placements, ranging from (not limited to) general education with consult to special schools. Full responsibility for the classroom is expected by the end of the student teaching experience.

**Prerequisites:** Upper Division with a score of 1 and SPED 4370 with a minimum grade of C or SPED 4120 with a minimum grade of C

**Corequisites:** SPED 4600

**Term Offered:** Spring

**SPED 4980 Special Topics In Special Education**

[1-5 credit hours]

An advanced course for undergraduate majors in special education or majors in related fields covering an important area of special education. Student may repeat this course under different section numbers.

**Term Offered:** Spring, Summer, Fall

**SPED 4990 Independent Study - Special Education**

[1-5 credit hours]

Individual study provides students with opportunities to work individually on issues under the direction of department of Special Education Services faculty. The student meets with instructor without formal classes.

**Term Offered:** Spring, Summer, Fall

## Speech Language Pathology (SLP)

**SLP 1400 Introduction to Communication Disorders**

[3 credit hours]

A study of causative factors and characteristics of communicative disorders in comparison to normal speech/language/hearing processes.

**Term Offered:** Fall

**SLP 2150 Speech and Hearing Science**

[4 credit hours]

A detailed exploration of the speech and language production system, as well as the hearing mechanism with relation to the auditory environment. Information on aerodynamic and acoustic parameters of speech, the anatomy and physiology of the speech and hearing mechanisms, the neural basis of speech/language/hearing, and the speech perception system is provided during this course. The course is designed with lab experiences so students can get hands-on practice.

**Term Offered:** Spring

**SLP 2400 Communication Disorders**

[3 credit hours]

A study of causative factors and characteristics of communicative disorders in comparison to normal speech/language/hearing processes.

**Term Offered:** Spring, Fall

**SLP 3010 Clinical Phonetics**

[0-4 credit hours]

Understanding of articulatory and acoustic phonetics with emphasis on the development of transcription skills using the International Phonetic Alphabet in recording normal and disordered speech production. Laboratory required for transcription skill development.

**Term Offered:** Spring, Fall

**SLP 3020 Anatomy And Physiology Of Communication Mechanisms**

[0-4 credit hours]

The study of the anatomy and physiology of the mechanisms used for communication including oral-pharyngeal-esophageal, respiratory, and neurological systems.

**Term Offered:** Spring, Fall

**SLP 3030 Normal Language Acquisition**

[0-4 credit hours]

Presents basic theories of language acquisition and procedures to describe the developmental sequence of childhood language. Procedures and techniques for analyzing childhood language are introduced and practiced in laboratory experiences.

**Term Offered:** Spring, Fall

**SLP 3150 Speech and Hearing Science**

[0-4 credit hours]

A detailed exploration of the speech and language production system, as well as the hearing mechanism with relation to the auditory environment.

Information on aerodynamic and acoustic parameters of speech, the anatomy and physiology of the speech and hearing mechanisms, the neural basis of speech/language/hearing, and the speech perception system is provided during this course. The course is designed with lab experiences so students can get hands-on practice.

**Term Offered:** Spring, Fall

**SLP 3200 Articulation/Phonological Disorders**

[0-4 credit hours]

Assessment techniques and intervention strategies for persons with disorders of the sound system of the language. Theories of phonological acquisition and etiological factors will be discussed during this course. Laboratory experience required.

**Prerequisites:** SLP 3010 with a minimum grade of D- and SLP 3020 with a minimum grade of D-

**Term Offered:** Spring, Fall

**SLP 3300 Language Disorders**

[0-4 credit hours]

Course includes the identification of etiologic bases and characteristics of language disorders. Assessment strategies leading to choice of intervention techniques will be discussed. Laboratory experience required.

**Prerequisites:** SLP 3030 with a minimum grade of C

**Term Offered:** Spring, Fall

**SLP 3400 Clinical Audiology**

[3 credit hours]

The student learns to administer and interpret the comprehensive auditory battery consisting of pure-tone air conduction and bone conduction thresholds, speech reception thresholds, speech discrimination tests and acoustic emittance test battery.

**Term Offered:** Spring, Fall



**SLP 3800 Methods For Clinical Intervention**

[3 credit hours]

Teaches methods of intervention of speech, language and hearing services in various settings. Emphasis on developing skills in observation, report writing, and structuring intervention services and their implementation. Requires 25 hours of observation. Mandatory clinic meeting, and one hour lab duty. Laboratory experience required.

**Prerequisites:** (SLP 3200 with a minimum grade of B- and SLP 3300 with a minimum grade of B-)

**Term Offered:** Spring, Fall

**SLP 4000 Beginning Clinical Practicum**

[2 credit hours]

Supervised participation in structured individual or group intervention leading to the accumulation of 25 clinical hours of practicum.

**Prerequisites:** SLP 3800 with a minimum grade of B-

**Term Offered:** Spring, Summer, Fall

**SLP 4350 Concomitant Disorders**

[3 credit hours]

This capstone course explores literature in advanced speech and language disorders as well as intervention communication disorders.

**Term Offered:** Spring

**SLP 4910 Directed Research In Speech-Language Pathology**

[1-5 credit hours]

Directed research provides students the opportunity to explore specific topics and develop individual research with a faculty member. Current questions in the area of speech-language pathology will be the focus.

**Term Offered:** Spring, Summer, Fall

**SLP 4920 Readings In Speech-Language Pathology**

[1-5 credit hours]

Individual Readings is designed to provide students with opportunities to examine literature related to specific issues. The student works under the direction of faculty in the speech-language pathology program.

**SLP 4980 Special Topics In Speech-Language Pathology**

[1-5 credit hours]

An advanced course for undergraduate majors in speech-language pathology or majors in related fields covering an important area of communication disorders. Student may repeat this course under different section numbers.

**Term Offered:** Spring, Fall

**SLP 4990 Independent Study Speech-Language Pathology**

[1-5 credit hours]

Independent study provides students with opportunities to work individually on issues under the direction of the speech-language pathology program faculty. The student meets with instructor without formal classes.

**Term Offered:** Spring, Summer, Fall

## Theatre (THR)

**THR 1010 Acting for Non Majors**

[3 credit hours]

Learn the fundamentals of acting through exercises, devised playmaking and scene study. Through active class participation, the student discovers an understanding of the basic artistic process of the performer and how that process may lead to self-realization and heightened awareness.

**Term Offered:** Spring, Summer, Fall

**THR 1030 Stagecraft and Theatre Technology**

[3 credit hours]

[3 hours] Introduction to theatre technology using the tools and practices utilized in set construction, properties scene painting and scene design. Lectures, readings and projects with practical laboratory experience.

**Term Offered:** Spring, Fall

**THR 1040 Stage Lighting and Sound Technology**

[3 credit hours]

Introduction to theory and practice in stage lighting and sound. Students will use lighting and sound tools and equipment in production crews on department productions.

**Term Offered:** Spring, Fall

**THR 1050 Costume Technology**

[3 credit hours]

Introduction to the theory and practice of stage costuming. Lectures, readings and projects offer practical laboratory experiences. Students will use tools and equipment of the costume shop on production crews.

**Term Offered:** Spring, Fall

**THR 1100 Introduction To Theatre**

[3 credit hours]

Introductory survey of the development of theatre and drama from the ancient world to the present day; discussion of representative plays; slides and films complement lectures. (Not recommended or required for majors.)

**Term Offered:** Spring, Summer, Fall

Core Arts & Humanities, OT36 Arts and Humanities

**THR 2000 Theatre Production Practicum**

[0 credit hours]

Students will be assigned a crew position for one of the department productions.

**Term Offered:** Spring, Fall

**THR 2020 Theatre Performance Practicum**

[1-3 credit hours]

Lab course introducing students to the departmental production program through participation as a performer.

**Term Offered:** Spring, Summer, Fall

**THR 2050 Theatre Shop Practicum**

[0 credit hours]

Lab course where students apply skills from foundational design and technology courses in support of the departmental production program. Practicum II students serve in departmental workshops throughout the semester. The course is credit/no credit.

**Prerequisites:** THR 1030 with a minimum grade of D- and THR 1040 with a minimum grade of D- and THR 1050 with a minimum grade of D-

**THR 2100 Departmental Ensemble**

[0 credit hours]

A collaborative colloquium course in support of departmental production and academic programming. This course is credit/no credit.

**THR 2200 Script Analysis**

[3 credit hours]

A survey of various playwriting and performance text composition structures from ancient to contemporary periods. Students will focus on the most prevalent and ground-breaking dramaturgical methods in the historical practice of dramatic composition.

**Term Offered:** Spring, Fall**THR 2400 Fundamentals of Design**

[3 credit hours]

Fundamentals of Design is an introduction to visual communications, styles and techniques. It also includes a thorough exploration of basic aesthetic theory as it applies to all elements of visual design. Fundamentals of Design will develop skills of script analysis, as well as explore designing for the stage and screen as a means of communication, artistic expression and the organization of design information.

**Prerequisites:** THR 2200 with a minimum grade of D-**Term Offered:** Fall**THR 2420 Stage Makeup**

[3 credit hours]

[2 hours] Introduction to principles and techniques of makeup for the stage. Students explore practical executions of stage makeup problems. Topics may include special effects, old age techniques, creature design, period specific makeup and makeup design. Students are required to purchase supplies.

**Term Offered:** Spring, Fall**THR 2600 Acting I**

[3 credit hours]

An introduction to the art and craft of acting. Through scene work and improvisation, students learn to use acting terminology, identify dramatic beats, develop character objectives and play actions. Students who are not theatre majors or minors must get permission of instructor.

**Term Offered:** Spring, Fall**THR 2640 Voice And Movement**

[3 credit hours]

Theory and practice of vocal and physical techniques for the actor. Repeatable for up to 8 hours of credit.

**Prerequisites:** THR 2600 with a minimum grade of D- or THR 2610 with a minimum grade of D- or THR 1010 with a minimum grade of D-**Term Offered:** Spring, Fall**THR 2660 Acting for the Camera I**

[3 credit hours]

Performing dramatic material for camera with an emphasis on the differences between stage and screen performing.

**Prerequisites:** THR 2610 with a minimum grade of D- or THR 2600 with a minimum grade of D-**THR 2700 Introduction to Dance**

[3 credit hours]

This course is an introduction to the art of dance. Movement sessions will include ballet, jazz, and contemporary dance technique, along with exploration in dance improvisation, composition, and performance.

**Term Offered:** Spring**THR 2990 Special Projects**

[1-3 credit hours]

Individual study provides a student an opportunity to work independently on a problem of special interest in theatre under the direction of the faculty. (Seminar forms available in the department office.)

**Term Offered:** Spring, Fall**THR 3150 Theatre History - Ancient to Contemporary - WAC**

[3 credit hours]

This course explores major developments and trends in theatrical production, theory, and playwriting from ancient times to the Present. The study of theatre history in this course is applied to the development of design and directorial approaches for plays by theatre artists. In addition, students will use performance techniques in class to explore historical production methods and theatrical theories through practice.

**Prerequisites:** ENGL 1110 with a minimum grade of D-**Term Offered:** Spring, Fall**THR 3210 Playwriting**

[3 credit hours]

Creative writing for the theatre analyzing traditional and contemporary structure and style.

**Prerequisites:** ENGL 2720 with a minimum grade of D- or THR 2200 with a minimum grade of D-**Term Offered:** Spring, Fall**THR 3250 Theatre and Stage Management**

[3 credit hours]

Theatre & Stage Management will provide students with a general overview of the administrative and management functions of an arts organization as well as an introductory look at the responsibilities and process of stage management. Through readings and videos, interactive discussion forums, research projects, and practical assignments, the student will develop an understanding of the structure and business of the performing arts and its various management positions, translating traditional business practices into the language of the arts.

**Term Offered:** Spring, Summer, Fall**THR 3340 Acting for the Camera II**

[3 credit hours]

This course is directed toward third and fourth year acting students at University of Toledo's Department of Theatre and Film who have completed Acting for the Camera I. It is designed to reinforce and build upon the principles explored in Acting for the Camera I.

**Prerequisites:** THR 3610 with a minimum grade of D- or THR 2660 with a minimum grade of D-**Term Offered:** Spring**THR 3410 Stage Lighting Design**

[3 credit hours]

Principles and theories of lighting design for theatrical productions are explored. Develop skills of script analysis, light study, light plot and related graphics for conceptualization and communication of design ideas.

**Prerequisites:** THR 1040 with a minimum grade of D- and THR 2400 with a minimum grade of D-**Term Offered:** Spring

**THR 3430 Advanced Stagecraft and Technical Production**

[3 credit hours]

This course is designed to expand upon the foundation of scenic construction techniques formed in basic theatre practices: Stagecraft. Topics include welding/metalworking, advanced woodworking, scenic automation, theatrical rigging, and technical direction/project management/shop management.

**Prerequisites:** THR 1030 with a minimum grade of D-

**THR 3440 Stage Scenic Design**

[3 credit hours]

Theory and principles of scenic design for stage are the focus. Conceptualization and communication of design ideas are explored through renderings, models, ground plans and elevations. Students are required to purchase supplies.

**Prerequisites:** THR 2400 with a minimum grade of D-

**Term Offered:** Fall

**THR 3450 Scene Painting**

[3 credit hours]

Students learn the fundamental skills of the scenic artist in large scale painting: preparing and sizing the surfaces, gridding and other layout, and painting techniques and tools used by the scenic artist.

**THR 3460 Advanced Costume Construction**

[3 credit hours]

This course builds upon the skills developed in THR 1050 Costuming. Advanced techniques will be explored such as pattern development, construction of several garments from pattern to finishing, as well as development of additional advanced hand sewing techniques.

**Prerequisites:** THR 1050 with a minimum grade of D-

**Term Offered:** Spring, Fall

**THR 3470 Stage Sound Design**

[3 credit hours]

Students study the methods and techniques of sound production and design used in the theatre. Tools and techniques of audio production are used in laboratory recording and mixdown.

**Prerequisites:** THR 1040 with a minimum grade of D- or MUS 2270 with a minimum grade of D-

**Term Offered:** Spring

**THR 3480 Stage Costume Design**

[3 credit hours]

Principles and theories of costume design for theatrical productions are explored. Develop skills of script analysis, sketching, fabric study and rendering for conceptualization and communication of design ideas. Students are required to purchase supplies.

**Prerequisites:** THR 1050 with a minimum grade of D-

**THR 3600 Acting II**

[3 credit hours]

Students are exposed to a range of techniques explicated by primary acting theorists/practitioners, including diagnosis of individual skills, work in voice, movement, textual analysis and scene preparation.

**Prerequisites:** THR 2610 with a minimum grade of D- or THR 2600 with a minimum grade of D-

**Term Offered:** Spring

**THR 3710 Directing I**

[3 credit hours]

The director's approach to analyzing a script, formulating a production concept and realizing that concept on stage. Discussions and exercises progress to directing scenes or short plays in class.

**Prerequisites:** THR 2400 with a minimum grade of D- and THR 2610 with a minimum grade of D- and THR 3150 with a minimum grade of D- or THR 4150 with a minimum grade of D-

**Term Offered:** Spring, Fall

**THR 3800 Production**

[1-3 credit hours]

Through study and practice the student contributes significantly to department productions. This course is for students who have auditioned for roles or applied for design/tech positions in department productions.

**Term Offered:** Spring, Summer, Fall

**THR 3990 Professional Conference-Festival Practicum**

[0 credit hours]

A lab course in support of preparation and participation in pre-professional experiences, conferences and/or festivals. There is a lab fee in support of student travel and expenses.

**Term Offered:** Spring, Fall

**THR 4150 Theatre Studies**

[3 credit hours]

Application of the methods of theatre history, theory, and criticism to the exploration of a specific theatrical theme, style, historical period, or practice.

**THR 4250 Administration and Management of the Arts**

[3 credit hours]

Administration and Management of the Arts will provide undergraduate and graduate students with an advanced look at the managerial, structural, and operational functions of visual and performing arts organizations, translating traditional business practices into the language of the arts.

**Term Offered:** Spring, Summer, Fall

**THR 4260 Promoting the Visual and Performing Arts**

[3 credit hours]

Promoting the Visual and Performing Arts will provide undergraduate and graduate students with an advanced look at the theoretical and functional practice of publicizing and advancing visual and performing arts organizations, ranging from consumer behaviors and analysis to campaign communications and strategies.

**Term Offered:** Spring, Summer, Fall

**THR 4270 Advanced Theatre Management**

[1-3 credit hours]

Study and application of professional practices of a specific Theatre Management position, including but not limited to Box Office, House and Production Management, as they pertain to the theatrical production. Emphasis is placed on the duties, responsibilities and procedures from pre-production to post-production planning.

**Prerequisites:** THR 3250 with a minimum grade of D-

**Term Offered:** Spring, Fall

**THR 4310 Acting for the Camera III**

[3 credit hours]

This course is directed toward fourth year and Capstone acting students at University of Toledo's Department of Theatre and Film who have completed Acting for the Stage I and Acting for the Camera I and II. It is designed to reinforce and build upon the principles explored in Acting for the Camera II. The course will consist of developing characters from dialogue, improvisation and writing, while creating a story with advanced filmmakers from the Film Department.

**Prerequisites:** THR 2660 with a minimum grade of D-**Term Offered:** Spring**THR 4400 Seminar Topics In Design**

[3 credit hours]

Individual and group investigations of particular topics in all phases of design and technology, i.e. scene painting, advanced design and rendering technique, new technology.

**Term Offered:** Spring, Fall**THR 4420 Advanced Project/Stage Management**

[1-3 credit hours]

Study and application of professional practices of the Project/Stage/Company Manager as they pertain to the theatrical production. Emphasis is placed on the duties, responsibilities and procedures from pre-production to post-production planning.

**Prerequisites:** THR 3250 with a minimum grade of D-**Term Offered:** Spring, Fall**THR 4440 Theatre Design**

[3 credit hours]

Principles and theories for theatrical design are explored through real world implementation on departmental productions.

**Term Offered:** Spring, Fall**THR 4600 Acting III**

[3 credit hours]

Advanced acting course with a focus on text analysis and the technique and craft of performance.

**Prerequisites:** (THR 2600 with a minimum grade of D- or THR 2610 with a minimum grade of D-) and (THR 2620 with a minimum grade of D- or THR 3600 with a minimum grade of D-)**Term Offered:** Spring, Fall**THR 4940 Internship**

[1-6 credit hours]

Internship with an approved program, company, or agency in theatre.

Students must submit proposal for approval of instructor. (Repeatable for 6 hours credit.)

**Term Offered:** Spring, Summer, Fall**THR 4950 Honors Thesis**

[3 credit hours]

Research or a creative project on a topic in theatre. Required of all candidates seeking department honors. (Repeatable for 6 hours credit.)

**Term Offered:** Spring, Fall**THR 4990 Special Projects**

[1-3 credit hours]

Individual study provides a student an opportunity to work independently on a problem of special interest in theatre under the direction of the faculty.

**Term Offered:** Spring, Fall

## Theory and Social Foundations (TSOC)

**TSOC 2000 Diversity In Contemporary Society**

[3 credit hours]

This course analyzes the roles of people in a culturally diverse society through an exploration of issues of race, class, gender, ethnicity and disability.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**TSOC 3000 Schooling And Democratic Society**

[3 credit hours]

The evolving role of education in the US, including the historical and contemporary relationship of schooling to other educational institutions, groups of people and the process of social change.

**Term Offered:** Spring, Summer, Fall**TSOC 4990 Independent Study In Educational Theory**

[1-4 credit hours]

Directed study of a current topic in educational theory and social foundations. The student meets with the instructor at arranged intervals without formal classes.

**Term Offered:** Spring, Summer, Fall

## Transport Tech (TPDT)

**TPDT 1010 Principles of Transportation**

[3 credit hours]

This course introduces the transportation services available in the marketplace, public policy decisions and concerns, pricing of transportation services, and transportation's relationship to other functions in the business world.

**Term Offered:** Spring, Summer

## Undergraduate Research (UGR)

**UGR 2980 Issues in Research and Scholarship**

[1 credit hour]

Seminar series addressing various issues that can arise in research, scholarship, and creative activities, including: safe laboratory practices, regulatory compliance issues, and ethics issues.

**Term Offered:** Summer**UGR 4910 Undergraduate Research Experience**

[0 credit hours]

Undergraduate students will participate in directed research, scholarship, or creative activities with faculty mentors.

**Term Offered:** Spring, Summer, Fall

## University College (UC)

**UC 1000 Orientation**

[1 credit hour]

An orientation to college for incoming first year students. It is designed to equip students with tools for academic success.

**Term Offered:** Spring, Fall

**UC 1010 Study Abroad Orientation**

[0 credit hours]

This course focuses on the theory and practice of interacting with or living and studying in other cultures that are different. This course provides the students with an informed cross-cultural perspective and the critical thinking skills necessary for a successful experience. Students will gain an understanding of the concept of culture, cross-cultural communication skills, as well as practical tools for making the most of an intercultural experience, including study abroad. The course is of particular relevance for students who plan on participating in experiential learning, where they will engage with people from other cultures. This could be a study abroad or faculty-led program experience, but it could also be an internship or volunteer experience. The expectation is that students engage with and follow the course throughout the semester, complete the assignments, examine and think critically about the material and participate class discussions, and affirm with their overall engagement that they have made a proactive choice to be in the course. Qualified students may have the opportunity to take part in a CISP-organized experiential learning trip to an international destination.

**Term Offered:** Spring, Fall**UC 1120 Career And Self-Evaluation**

[2 credit hours]

This course offers an opportunity to explore two important considerations in choosing a career: (1) career opportunities and requirements, (2) individual interests, abilities, skills, needs, values and goals. Students will have opportunities to develop a resume, complete career and interest assessments, investigate a variety of majors at UT and create a personalized career action plan.

**Term Offered:** Spring, Summer, Fall**UC 1130 Information Literacy for College Research**

[3 credit hours]

This course will provide information literacy skills specific to accessing sources and materials appropriate for university level research. Students will acquire a broader knowledge of library services and resources. Additionally, students will learn to apply research logic in order to utilize library catalogs, electronic databases, the World Wide Web, and print resources. By building experiential knowledge, students will gain an understanding of information creation, dissemination, and applications through utilizing various research strategies and scholarly communication.

**Term Offered:** Fall

Core Arts &amp; Humanities

**UC 1150 Orientation: Strategies for College Success**

[3 credit hours]

Acquaints students with the services, policies, procedures and layout of the University, along with relevant study skills and student learning services available campus-wide. Required of all pre-major students; optional for others.

**UC 1940 Learning Through Service**

[2 credit hours]

Students will be involved four hours a week in various community service projects and analyze and reflect on their experiences through journals, discussion and a final paper in a weekly seminar (local, domestic and International).

**UC 2980 Special Topics**

[1-4 credit hours]

Special Topics is an opportunity to create and pilot potential courses at a 2000 level.

**Term Offered:** Spring, Summer, Fall**UC 4980 Special Topics**

[1-4 credit hours]

Topics of interest to University College students offered by various instructors. Open to any University College student.

## Women and Gender Studies (WGST)

**WGST 2010 Introduction To Gender Studies: Gender, Sex And Difference**

[3 credit hours]

Interdisciplinary introduction to gender studies. Critically examines competing theories of gender and sex identification, construction, and biological determinism. Considers ethical and intersectional issues regarding differences of gender, sex and sexuality.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity

**WGST 2020 Girlhood and Adolescence**

[3 credit hours]

This class examines the adolescent experience of the American teenage girl using historical documents, current films, magazines, and popular teen fiction. This class looks at the complexities that race, socioeconomic status, ethnicity and sexual orientation have on the experience of the teenage girl. Students will have several opportunities to share their own adolescent experiences as they relate to assigned readings.

**Prerequisites:** WGST 2010 with a minimum grade of D-

Multicultural US Diversity

**WGST 2400 Women's Roles: A Global Perspective**

[3 credit hours]

The course focuses on the current and evolving social, economic and political status of women in the United States and selected non-Western societies.

**Term Offered:** Spring, Fall

Core Social Sciences, Multicultural Non-US Diversity, OT36 Social Science

**WGST 2640 Race, Class, And Gender**

[3 credit hours]

Introduction to the study of race, class and gender as factors in American stratification.

**Term Offered:** Spring, Summer, Fall

Core Social Sciences, Multicultural US Diversity, OT36 Social Science

**WGST 2880 Contemporary U.S. Queer Cultures**

[3 credit hours]

An interdisciplinary, multicultural examination of diverse lesbian, gay, bisexual, transgender, and other queer cultural productions, this course examines continuities and conflicts in aesthetics, issues, materials, and motivations for queer culture.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**WGST 2980 Special Topics In Women's And Gender Studies**

[3 credit hours]

Study of selected topics relevant to Women's and Gender Studies. May be repeated for major or minor credit when topic varies.

**Term Offered:** Spring, Summer, Fall**WGST 3010 Global Issues In Women's Studies**

[3 credit hours]

Required for the major. An interdisciplinary introduction to basic works of feminist thought, feminist methodologies and current issues in the field world-wide. Writing Intensive (WAC) course.

**Prerequisites:** ENGL 1130 with a minimum grade of D- or ENGL 2950 with a minimum grade of D- or ENGL 2960 with a minimum grade of D-

**Term Offered:** Spring, Summer, Fall

Multicultural Non-US Diversity

**WGST 3030 Women and the Body**

[3 credit hours]

This class will look at the complexities of women's relationships to their bodies and how the intersectionalities of race, gender identity, sexuality and societal pressures help shape the ways women feel about themselves. Using popular culture, feminist theory, and other mediums, this class expects students to participate in self-reflection, critical analysis, and the application of various feminist theories to their work.

**Prerequisites:** WGST 2010 with a minimum grade of D-

Multicultural US Diversity

**WGST 3080 Women In Poverty**

[3 credit hours]

Provides an understanding of women's poverty and its perpetuation through marriage and divorce, women's work and wages, welfare, children, child support and the economics of the unpaid women's labor.

**Term Offered:** Spring, Summer, Fall**WGST 3100 Globally Queer**

[3 credit hours]

This course will survey the experiences of queer individuals and communities around the globe from a human rights perspective.

**Term Offered:** Spring

Multicultural Non-US Diversity

**WGST 3150 Proseminar in Women's & Gender Studies**

[3 credit hours]

Designed for WGST majors & minors. Students reflect on the academic, professional and community activist/engagement dimensions of Women's and Gender Studies. Special emphasis is dedicated to the completion of a portfolio for future career opportunities, community activism/engagement, and graduate studies.

**Term Offered:** Fall**WGST 3200 Issues In Lesbian, Transgender, Bisexual And Gay Communities**

[3 credit hours]

This course will explore current issues facing diverse LTBGQ communities including historical, socio-cultural and political perspectives.

**Term Offered:** Fall**WGST 3510 Interpersonal Practice with Lesbian, Gay, Bisexual, Transgender and Queer Individuals**

[3 credit hours]

This course will provide an introduction and overview of sexual orientation and gender identity and expand understanding of how to implement affirmative models of practice with LGBTQ individuals, families and communities. Course content will include: perspectives on gender, identity formation, impact of homophobia, biphobia, and transphobia, affirming interventions with lesbian, gay, bisexual and transgendered persons, families, youth, communities and aging; and specific challenges facing the LGBT communities such as homelessness, domestic violence, bullying, and policy.

**Term Offered:** Spring, Summer, Fall**WGST 3550 Feminism And Philosophy: Love, Sex and Marriage**

[3 credit hours]

This course examines a number of cross-cultural philosophical conceptions of love, sex, and marriage, comparing historical and contemporary beliefs and practices in relation to gender/feminist and ethical theory. A number of philosophical and ethical issues, such as monogamy, cultural and theological contexts, pornography, marriage rights, and consent, will be investigated through readings, videos, and discussion boards, which are meant to encourage students to explore diverse viewpoints, analyze arguments, and cultivate a deeper critical awareness of their own and others' viewpoints.

**Term Offered:** Spring, Summer

Multicultural US Diversity

**WGST 3600 Feminist Health Humanities**

[3 credit hours]

This 15-week course will be taught from intersectional, feminist, health humanities perspectives. We will use the arts and culture in combination with humanistic social theory, to examine the following: gendered and racialized health disparities; gendered and racial constructions in the history of science/medicine; illness and disability life writing; biomedical ethics; the feminist health movement; grassroots community health organizing and feminist conceptualizations of wellbeing and radical self-care. Throughout the semester, there will be a sustained emphasis on health justice and the experiences of marginalized communities (women, people of color, the LGBTQ community, people with disabilities, etc.). Participants will leave the course more aware of important discussions in the health humanities and more fully prepared to apply inclusive knowledge practices within majors and career paths involving "health" – broadly defined. The course fulfills core curriculum requirements for Multicultural U.S. Diversity & Writing Across the Curriculum (WAC).

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**WGST 3650 Economics Of Gender**

[3 credit hours]

Analysis of labor market outcomes and income distribution characteristics resulting from gender differences; gender-related economic outcomes: the "feminization of poverty," persistent male-female wage differential, expanding proportions of female-headed and same sex households.

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**WGST 3700 Women's Studies Topics In Literature**

[3 credit hours]

Specific topics vary. Check schedule of classes for specific subject.

**Term Offered:** Spring, Fall**WGST 3750 Women And Literature - Writing Across the Curriculum**

[3 credit hours]

Examines literary works in light of major issues raised by feminist criticism. Specific emphasis varies. Recommended ENGL 2700 or 3790

**Term Offered:** Spring, Summer, Fall

Multicultural US Diversity

**WGST 3800 Sexual Politics**

[3 credit hours]

This course examines sexual politics through studying canonical literature of Western political theory, feminism and postmodern theory.

**Term Offered:** Spring, Fall**WGST 3980 Topics In Women's Studies**

[3 credit hours]

Specific topics vary. Check schedule of courses for specific subject.

**Term Offered:** Spring, Summer, Fall**WGST 4010 Women's Studies Topics In Film**

[3 credit hours]

Specific topics vary. Check schedule of courses for specific subject and prerequisites.

**Term Offered:** Spring, Fall**WGST 4110 Disability and Sexuality**

[3 credit hours]

Utilizing a cultural studies approach, this course investigates complex questions of how someone becomes understood as abnormal in contemporary culture. The course looks at the disability justice and LGBTQA+ justice; trans studies and disability studies; public health and private rights. The course uses interdisciplinary texts including memoir and life writing, philosophy, history, public health and sexuality studies to address questions central to disability justice and lived experience.

**Term Offered:** Spring, Fall**WGST 4160 Health And Gender**

[3 credit hours]

An examination of gender as a predisposing factor of health status, health behavior, health care delivery, and the structure and posture of health care professionals. Writing intensive (WAC) course.

**WGST 4190 Gender In Cross-Cultural Perspective**

[3 credit hours]

Analysis of gender stratification and its impact on culture in various nations and across ethnic groups in the United States.

Multicultural Non-US Diversity

**WGST 4350 Women's Studies Topics In Communication**

[3 credit hours]

Cross-listings of 4000-level courses with the communication department.

Specific topics vary. Check schedule of courses for specific subject and prerequisites determined by the department of communication.

**Term Offered:** Spring, Summer, Fall**WGST 4500 Women's Studies Topics In History**

[3 credit hours]

Crosslistings of 4000 level courses with the history department.

Specific topics vary. Check schedule of courses for specific subject and prerequisites.

**Term Offered:** Spring, Fall**WGST 4510 Women In American History**

[3 credit hours]

This course presents American history from early settlement to the present by examining the contributions of women, in interaction with men, to the immensely complex fabric of American life.

**Term Offered:** Spring, Fall

Multicultural US Diversity

**WGST 4540 Witchcraft And Magic In Medieval And Early Modern Europe**

[3 credit hours]

Witchcraft, religion and magic in western Europe from the 12th through 17th centuries, focusing on the origins of witchcraft belief, diabolical magic, the witchcraft and its decline.

**Term Offered:** Spring**WGST 4590 Law, Policy And The Politics of Sexuality**

[3 credit hours]

This course explores the public policies that affect the lesbian, gay, bisexual and transgender communities in the United States and in other countries. It examines the factors that affect policymaking in this area.

**Term Offered:** Spring, Fall**WGST 4700 Women's Studies Topics In Literature**

[3 credit hours]

Specific topics vary. Check Course Schedules for specific subject.

**Term Offered:** Spring**WGST 4770 American Women Writers**

[3 credit hours]

Author/authors vary with each offering. Consult schedule of courses for specific subject. Recommended ENGL 2700, 2800 or 3790.

**WGST 4810 Women's Health Care**

[3 credit hours]

The course is designed to consider personal health topics of special interest and applicability to women. The focus is upon the role of self-understanding and self-help in promotion of health and well-being.

**Term Offered:** Spring, Summer, Fall**WGST 4870 Feminisms**

[3 credit hours]

This introduction to global feminist thought familiarizes students with feminist terminology and a variety of feminist theoretical frameworks.

**Term Offered:** Spring, Fall**WGST 4880 Queer Theory WAC**

[3 credit hours]

This course explores the theoretical concepts/texts of Queer Theory and its locations in communities and identities, focusing principally on the theories that have emerged since the late 1990s.

**Prerequisites:** WGST 3010 with a minimum grade of D- or WGST 2010 with a minimum grade of D-**Term Offered:** Spring

Multicultural US Diversity

**WGST 4890 Research and Methods in Women's and Gender Studies**

[3 credit hours]

This course will present an overview of the ways in which women's/ gender/feminist studies have informed and complicated traditional theories of research and methodologies. Students will examine and use various research methods and tools to prepare a final research project.

**Term Offered:** Fall

**WGST 4900 Seminar In Women's Studies**

[3 credit hours]

Seminar focused on timely topics in Women's Studies chosen by rotating faculty.

**Term Offered:** Spring, Summer

**WGST 4910 Honors Thesis In Women's And Gender Studies**

[1-3 credit hours]

Supervised research and writing for honors students only.

**Term Offered:** Spring, Summer, Fall

**WGST 4940 Internship In Women's Studies**

[1-3 credit hours]

Practical field experience applying Women's Studies theories, arranged in conjunction with the department of women's and gender studies. Students must have pre-approval based on detailed written proposal.

**Term Offered:** Spring, Summer, Fall

**WGST 4980 Advanced Topics In Women's Studies**

[3 credit hours]

A course on a special topic in Women's Studies. Consult schedule of courses for topic to be studied and semester offered. Recommended WGST 3010.

**Term Offered:** Spring, Fall

**WGST 4990 Independent Study In Women's Studies**

[1-4 credit hours]

Supervised independent reading and research on selected topics. Before the end of open registration, students must present the supervising instructor a detailed written proposal and get written approval.

**Term Offered:** Spring, Summer, Fall



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