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College of Engineering

Undergraduate Catalog 2026-2027

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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 degree programs

- BS in Bioengineering (p. 18)*
- BS in Chemical Engineering (p. 22)*
- BS in Civil Engineering (p. 29)*
- BS in Computer Science (p. 47)*
- BS in Computer Science and Engineering (p. 50)*
- BS in Computer Science and Engineering Technology (p. 54)
- BS in Construction Engineering Technology (p. 32)*
- BS in Cyber Security (p. 56)
- BS in Electrical Engineering (p. 58)*
- BS in Electrical Engineering Technology (p. 61)
- BS in Environmental Engineering (p. 33)*
- BS in Information Technology (p. 62)
- BS in Mechanical Engineering (p. 75)*
- BS in Mechanical Engineering Technology (p. 79)

* Programs with three semesters of integrated co-operative (co-op) education as a required component of the curriculum. See the section on Co-operative Education below for more details.

Certificate and Minor Programs

The College of Engineering also offers specialized certificates and minor programs that can be taken in conjunction with a primary degree program.

- Materials Science and Engineering Certificate (p. 81)
- Surveying Certificate (p. 35)
- Minor in Computer Science (p. 64)
- Minor in Construction Management (p. 36)
- Minor in Cyber Security (p. 64)
- Minor in Environmental Engineering (p. 36)
- Minor in Mechatronics (p. 81)
- Minor in Software Engineering (p. 65)
- Minor in Surveying (p. 37)

Students may wish to consider a dual degree plan within the College of Engineering to earn two bachelor's degrees simultaneously. 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 Catalog (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 bachelor's degree programs with integrated co-operative education must successfully complete the cooperative (co-op) education 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 programs with required co-op 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 in programs with optional co-op who wish to participate in this program should contact the Shah Center for Engineering Career Development at 419.530.8050.

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

All students admitted to Bachelor of Science (B.S.) in Bioengineering, Chemical Engineering, Civil Engineering, Computer Science, Computer

Science and Engineering, Electrical Engineering, Environmental Engineering, or Mechanical Engineering programs 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 student applying to the Bioengineering, Chemical Engineering, or Environmental Engineering programs must have completed at least one year of high school chemistry. High school physics is strongly recommended.

With standardized test scores: Applicants to B.S. Bioengineering, Chemical Engineering, Civil Engineering, Computer Science, Computer Science and Engineering, Electrical Engineering, Environmental Engineering, or Mechanical Engineering programs 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 minimum ACT math and composite scores of 22 or an SAT combined score of 1110 and a minimum SAT math score of 540.

No standardized test scores: Applicants to B.S. Bioengineering, Chemical Engineering, Civil Engineering, Computer Science, Computer Science and Engineering, Electrical Engineering, Environmental Engineering, or Mechanical Engineering must have earned 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 application, the student will be admitted to the College of Engineering pre-major program. Admission to the applied program will be re-evaluated when final transcripts are received. Most students are moved to their intended major before their first semester.

Any applicants who do not meet the program minimum admission requirements will be admitted to the College of Engineering pre-major program should they hold a 3.0 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, applicants will be admitted to the Exploratory Studies program in University College. University College students can work toward meeting the engineering transfer requirements and transfer to the College of Engineering once these requirements are met.

FIRST TIME STUDENTS APPLYING TO ENGINEERING TECHNOLOGY PROGRAMS

All students admitted to Bachelor of Science (B.S.) in Information Technology, Cybersecurity, or one of the Engineering Technology programs (Computer Science and Engineering Technology, Construction Engineering Technology, Electrical Engineering Technology, and Mechanical Engineering Technology) must have completed a minimum of high school mathematics through Algebra II or their high school's equivalent course.

With standardized test scores: Applicants to B.S. Information Technology, Cybersecurity, Computer Science and Engineering Technology, Construction Engineering Technology, Electrical Engineering Technology, or Mechanical Engineering Technology 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 with a minimum ACT math score of 20 or an SAT combined score of 1080 with a minimum SAT math score of 520 is also required.

No standardized test scores: Applicants without standardized test scores require a minimum high school GPA of 3.0 and a B grade or higher in Algebra II.

Any applicants who do not meet the minimum admission requirements for Engineering Technology and related programs listed above will be admitted to the Exploratory Studies program in University College. University College students can work toward meeting the engineering technology transfer requirements and transfer to the College of Engineering once these requirements are met.

Transfer Students

Students transferring from other institutions must earn at least 32 cr hr of undergraduate credit in residence at The University of Toledo of which at least 14 cr hr must be in the major area. The remaining credit hours are to be in engineering topics or in other areas that satisfy degree requirements.

Engineering Science Programs: 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. Transfers into Computer Science must have a minimum GPA of 2.75 from all previous college or university work and have college credit equivalent to MATH 1850 with a grade of C or higher.

Engineering Technology and related programs: Students transferring into the College of Engineering Information Technology, Cyber Security, Computer Science and Engineering Technology (CSET), Construction Engineering Technology (CET), Electrical Engineering Technology (EET), Mechanical Engineering Technology (MET), and Undecided Engineering Technology (UNDT) must have obtained a minimum cumulative GPA of 2.25 from all previous college or university work.

Additional requirements for specific programs must also be met.

- For transfers into Construction Engineering Technology or Mechanical Engineering Technology, equivalent credit for MATH 1330 or MATH 1340 with a grade of C or higher is required.
- For transfers into Computer Science and Engineering Technology (CSET), Cyber Security, Electrical Engineering Technology (EET), and Undecided Engineering Technology (UNDT), MATH 1850 or MATH 2450 with a grade of C or higher is required.

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 120-128 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 Engineering Science degree programs and Construction Engineering Technology; co-operative education is optional for all other degree programs. All students in co-operative education (required and opt-in) must complete a minimum of three semesters of co-op.

The required curriculum and recommended course sequence for each program is in the University catalog under degrees offered (https://catalog.utoledo.edu/undergraduate/engineering/degrees-offered/). Programs with required co-op are designed to be completed in four-and-a-half years. Programs without co-op can be completed in four years.

Progress Toward Degree and Degree Audit Reporting System (DARS)

Students should monitor progress toward degree using the Degree Audit Reporting System within the myUT portal. The Degree Audit Reporting System is an automated record that contains all of the program degree requirements and tracks a student's progress toward meeting those requirements. Students are encouraged to keep current degree audits for their personal use and to discuss their degree audits with their academic advisers. Preparation of the final year registrations should be completed in coordination with an academic advisor or program director to ensure that all degree requirements will be met. Application for graduation should be made within 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).

Evaluation of Transfer Credit

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%20%20Repeating%20a%20course%20and%20recaluation%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.

Academic Standing

All students are expected to stay on good academic standing by maintaining a minimum cumulative GPA of 2.0/4.0. A student who achieves a cumulative GPA below 2.0 will be placed on academic alert (less than 30 cr hr completed) or academic warning (30 or more completed cr hr). Students on academic alert and academic warning are expected to achieve a term GPA above 2.0 during subsequent semesters in order to achieve good academic standing. Earning a term GPA below 2.0 while on academic alert or academic warning could lead to suspension or dismissal as described in the Academic Standing (https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-01-1%20Academic%20standing%20procedure.pdf) procedure.

Readmission from Suspension or Dismissal

Suspended or dismissed students must submit a written petition to the Associate Dean of Academic Affairs in order to gain readmission after the period of suspension or dismissal has been completed. Petitions should be submitted through the Office of Student Success and Engagement. Readmission decisions will be made by the Associate Dean of Academic Affairs 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.

The College of Engineering does not allow early readmission from suspension or dismissal; appeals will not be accepted. Readmission petitions will only be considered after the full suspension or dismissal period has been served.

Student Services

Engineering undergraduate students have a support structure that includes their academic advisor, their undergraduate program director, and the program manager for the Student Success, Opportunity, and Engagement Office.

College of Engineering Academic Advisors

Academic advisors offer personalized guidance and connect you with campus resources to support your success. Meet with your advisor at least once each semester—not just to register for classes, but to review your progress and adjust goals. Always consult your advisor before changing your schedule, as dropping or withdrawing from a course can

have unintended consequences. You can find your assigned academic advisor in your student profile through your myUT portal.

If you are not in the College of Engineering or in the engineering major you wish to pursue, please contact the academic advising office to get connected to the program-specific advisor.

Learn more at utoledo.edu/offices/advising (https://www.utoledo.edu/offices/advising/) or call 419.530.4444.

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College of Engineering Faculty Advisors

Faculty advisors can provide professional guidance as you navigate your degree program. They can approve changes to your plan of study, connect you with alumni and professional development opportunities, and provide assistance in navigating engineering career paths, including options for graduate education.

Bioengineering

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Chemical Engineering

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Civil Engineering and Environmental Engineering

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Electrical Engineering and Computer Science and Engineering

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Engineering Tutoring and Study Center

In addition to the Learning Enhancement Center (LEC) (https://catalog.utoledo.edu/general-section/academic-support-services-tutoring/) in the Carlson Library, the College of Engineering has a tutoring and study center in North Engineering accessible to all engineering students. The space includes quiet and group study rooms, offices for teaching assistants, and peer tutoring for first and second year engineering courses.

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Honors Program

The Honors Program in the College of Engineering provides opportunities for challenging and individual study for undergraduate students of unusually high ability, motivation and initiative. Students may apply for the Honors Program at the time of admission. Current and transfer students may apply after completing 15 but no more than 60 cr hr. Minimum GPA and application details are available on the Jesup Scott Honors College Admission Requirements (https://catalog.utoledo.edu/undergraduate/jesup-scott-honors/admission-requirements/) page.

To receive the Honors College medallion 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 9 semester hours of honors courses offered by the College of Engineering;
5. An honors thesis or honors project.

More information on the Blue and Gold track for engineering students is on the Jesup Scott Honors College Program (https://catalog.utoledo.edu/undergraduate/jesup-scott-honors/jesup-scott-honors-college-program/) page.

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 (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
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
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
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. 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:

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; and
5. 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:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions

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

3. Communicate effectively in a variety of professional contexts

4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles

5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline

Program-specific learning outcomes

6. Apply computer science theory and software development fundamentals to produce computing-based solutions (CAC CS Program Criteria).

6. Apply security principles and practices to maintain operations in the presence of risks and threats (CAC Cybersecurity Program Criteria).

6. Use systemic approaches to select, develop, apply, integrate, and administer secure computing technologies to accomplish user goals (CAC IT Program Criteria).

Department of Bioengineering

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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. 18)

BIOE 1000 Orientation and Introduction to Bioengineering Computing
[0-2 credit hours]
Application of graphical design (CAD) and numerical analysis software required for the solution of bioengineering problems. This course includes creation of 3D models and assemblies, engineering drawings, and geometric dimensioning and tolerancing. Numerical analysis includes creating program flowcharts, writing programs, and visually representing data.
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, governmental regulation and FDA approval processes.
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
[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 4530 Microbiome and Multi-Omics
[3 credit hours]
Microbiome indicates a group of microbes, and multi-omics are biological tools to understand the role of the microbiome in nature. The course covers the basics of microbiology to the most recent microbiome research and application to various fields such as engineering, environment, and human health. Therefore, the course will be useful, especially for the students who do not have much background knowledge on microbiology but want to have a broad view of how microbes work for us. The class will provide fundamental knowledge of microbiology to the students with different training and backgrounds, such as engineering, science, pharmacy, and medicine. Hands-on experience in the lab as well as with the computers will greatly support students engage the course concepts of microbiome and multi-omics. At the end of the course, students will understand how microbes contribute to environmental sustainability, engineering processes, and human health. Must be junior or senior to enroll.
Term Offered: Spring

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, Fall

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, Summer, 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

Bioengineering at the University of Toledo

Bioengineering is an interdisciplinary field that integrates biology, engineering, and technology to tackle critical challenges in healthcare, sustainability, the environment, and energy sectors. In healthcare, bioengineers address complex problems in tissue engineering—such as creating artificial organs—and design cutting-edge biomedical devices, including advanced prosthetics, diagnostic tools, and implantable technologies like pacemakers. Additionally, they advance personalized medicine by developing targeted therapies through organ-on-a-chip engineering, genetic engineering and biotechnology, all with the overarching goal of saving lives, enhancing quality of life, and reducing healthcare costs. Beyond healthcare, bioengineers play a vital role in sustainability. They drive biomanufacturing innovations to produce sustainable materials, biofuels, and biodegradable products, while also refining processes to improve waste management and environmental conservation.

About Our Accredited Bioengineering Program

Our bioengineering program provides students with a comprehensive education, encompassing mathematics, science, and engineering, alongside valuable training in entrepreneurship and business acumen. Students gain hands-on experience in state-of-the-art laboratories specializing in biomedical instrumentation, bioprocessing, and biomechanics. Furthermore, through our co-op program, every student completes over a year of industry training while earning their undergraduate degree—giving them a competitive edge as they step into careers that make a tangible impact on people's lives.

Code	Title	Hours
BIOE 1000	Orientation and Introduction to Bioengineering Computing	2
BIOE 1410	Freshman Design Innovation I	1
BIOE 1420	Freshman Design Innovation II	1
BIOE 1200	Introduction to Bioengineering Applications	2
BIOE 1010	Professional Development	1
BIOE 2200	Biomaterials	3
BIOE 2300	Biomedical Quality Control	3
BIOE 3110	Introduction To Biomechanics	3
BIOE 2100	Bioengineering Thermodynamics	3
BIOE 3940	Co-Op Experience	3
BIOE 3500	Bioprocessing Laboratory	3
BIOE 3300	Biomedical Electronics	3
BIOE 3400	Biotransport Phenomena	3
BIOE 4100	Physiology And Anatomy For Bioengineers	3
BIOE 4140	Biomedical Instrumentation Laboratory	2
BIOE 4120	Biosignal Processing	3
BIOE 4410	Bioengineering Design Project I	3
BIOE 4750	Experimental Methods In Orthopedic Biomechanics	3
BIOE 4420	Bioengineering Design Project II	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
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
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
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

Technical Electives		9
BIO Technical Elective		3
EECS 2300	Electric Circuits	4
Arts/Humanities Core/Non-U.S. Diversity		6
Social Sciences Core		6
Diversity of US		3
Total Hours		**128**

Combined bachelor's to master's- BS to MS Bioengineering

Undergraduate students accepted to the BS to MS Bioengineering option will be admitted to the MS in Bioengineering 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) BIOE 5200, BIOE 5620, BIOE 5740, BIOE 5830, BIOE 5780, BIOE 5650 and other elective coursework as approved by the Undergraduate and Graduate Program Directors 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. 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
	Hours	**15**
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
	Hours	**17**
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
	Hours	**17**
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
	Hours	**16**
Fifth Term		
ENGL 2950	Technical Writing	3
Arts/Humanities Core		3
Social Sciences Core		6
Diversity of US		3
	Hours	**15**
Sixth Term		
BIOE 3940	Co-Op Experience	1
	Hours	**1**
Seventh Term		
BIOE 3500	Bioprocessing Laboratory	3
BIOE 4100	Physiology And Anatomy For Bioengineers	3
EECS 2300	Electric Circuits	4
Technical Electives		6
	Hours	**16**
Eighth Term		
BIOE 3940	Co-Op Experience	1
	Hours	**1**
Ninth Term		
BIOE 3300	Biomedical Electronics	3
BIOE 3400	Biotransport Phenomena	3
BIOE 4140	Biomedical Instrumentation Laboratory	2
BIOE 4410	Bioengineering Design Project I	3

Technical Elective		3
	Hours	**14**
Tenth Term		
BIOE 3940	Co-Op Experience	1
	Hours	**1**
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
	Hours	**15**
	Total Hours	**128**

- 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. 22)

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, adsorption, extraction, and membrane separations.
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

Chemical engineering is an extremely versatile discipline that combines math, chemistry, physics, biology, and economics with core engineering principles. While the field originated in the design of chemical plants for large-scale production, modern chemical engineers work across a broad spectrum of industries—from medicine and microelectronics to sustainable energy and advanced materials.

The accredited#College of Engineering#is a pillar of The University of Toledo. Bright, motivated students are attracted by UToledo's engineering co-op program. UToledo chemical engineers are poised to help address some of society's most pressing challenges, including:

- Produce renewable fuels, cosmetics, and polymers.
- Design green manufacturing processes.
- Engineer processes for pharmaceuticals and foods.

With careers that combine innovation and purpose, chemical engineers create, analyze, and evaluate solutions that support a more sustainable and healthy future.

See Plan of Study.

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
	Hours	**15**
Second Term		
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
MATH 1860	Single Variable Calculus II	4
COMM 1010	Communication Principles And Practices	3
CHEE 1010	Professional Development	1
CHEE 2010	Mass And Energy Balances	3
	Hours	**16**
Third Term		
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
	Hours	**16**

Fourth Term		
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
	Hours	**16**
Fifth Term		
CHEE 3940	Co-Op Work Experience	1
	Hours	**1**
Sixth Term		
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
	Hours	**17**
Seventh Term		
CHEE 3940	Co-Op Work Experience	1
	Hours	**1**
Eighth Term		
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
	Hours	**18**
Ninth Term		
CHEE 3940	Co-Op Work Experience	1
	Hours	**1**
Tenth Term		
Diversity of US		3
Social Sciences Core		3
Social Sciences Core		3
Engineering Elective		3
CHEE 4520	Chemical Process Economics And Design	3
	Hours	**15**
Eleventh Term		
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
	Hours	**15**
	Total Hours	**131**

- 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

Department of Civil Engineering and Environmental Engineering

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Degrees Offered

- BS in Civil Engineering (p. 29)
- BS in Construction Engineering Technology (p. 32)
- BS in Environmental Engineering (p. 33)
- Certificate in Surveying (p. 35)
- Minor in Construction Management (p. 36)
- Minor in Environmental Engineering (p. 36)
- Minor in Surveying (p. 37)

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 Building Information Modeling
[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.
Corequisites: CIVE 1100
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.
Term Offered: Spring, 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
[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- or CIVE 1110 with a minimum grade of D-
Corequisites: CET 4460
Term Offered: Spring

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]
This 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. Project supervision, OSHA construction safety and engineering ethics pertaining to construction will be covered.
Prerequisites: CET 2060 (may be taken concurrently) with a minimum grade of D-
Term Offered: Spring, Fall

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- or PHYS 2140 with a minimum grade of D-) or (MATH 1920 with a minimum grade of D- and PHYS 2130 with a minimum grade of D- or PHYS 2140 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
[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- or PHYS 2140 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, Fall

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 4530 Microbiome and Multi-Omics
[3 credit hours]
Microbiome indicates a group of microbes, and multi-omics are biological tools to understand the role of the microbiome in nature. The course covers the basics of microbiology to the most recent microbiome research and application to various fields such as engineering, environment, and human health. Therefore, the course will be useful, especially for the students who do not have much background knowledge on microbiology but want to have a broad view of how microbes work for us. The class will provide fundamental knowledge of microbiology to the students with different training and backgrounds, such as engineering, science, pharmacy, and medicine. Hands-on experience in the lab as well as with the computers will greatly support students engage the course concepts of microbiome and multi-omics. At the end of the course, students will understand how microbes contribute to environmental sustainability, engineering processes, and human health. Must be junior or senior to enroll.
Term Offered: Spring

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: Summer, Fall

CIVE 4690 Sustainability Engineering
[3 credit hours]
Course develops students' abilities to apply the principles of sustainability to engineered sysems. 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 involing uncertain and probabilistic phenomena. Decision-making with multiple objectives, monte carlo simulation, reliability based design, and Markov process are studied.
Term Offered: Spring, 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

Overview

The University of Toledo's accredited Civil Engineering bachelor's degree program has been ranked in the top 20 in the country. What our students do best is apply knowledge learned in the classroom to problems in the real world.

UToledo's College of Engineering is one of only eight engineering colleges in the country to require co-ops for all engineering students. Our graduates are in high demand worldwide thanks to this practical design experience.

Civil engineers make people's lives healthier, safer and more sustainable. They design, construct and maintain infrastructure, such as shelter, transportation and clean air and water facilities. Graduates with civil engineering degrees are in high demand as the country's existing facilities age. Classes in the Department of Civil and Environmental Engineering emphasize sustainability and green design principles. Our program focuses on four fields: environmental, geotechnical, structural and transportation.

Code	Title	Hours
CHEM 1230	General Chemistry I	4
CIVE 1000	Freshman Civil Engineering Experience	1
CIVE 1100	Civil Engineering Measurements	3
CIVE 1150	Engineering Mechanics: Statics	3
CET 1100	Building Information Modeling	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
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
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 [1]		15
Arts/Humanities Core		
Social Science Core		
Non-US Diversity		
US Diversity		
Total Hours		**130**

[1] 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.

Combined bachelor's to master's- Civil Engineering

Undergraduate students accepted to the **BS to MS Civil Engineering** option will be admitted to the **MS in Civil Engineering** 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) CIVE 5300, CIVE 5320, CIVE 5340, CIVE 5440, CIVE 5480, CIVE 5610, CIVE 5710 and other elective coursework as approved by the Undergraduate and Graduate Program Directors 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. Consult your degree audit for your program requirements.

First Term		Hours
CHEM 1230	General Chemistry I	4
CIVE 1000	Freshman Civil Engineering Experience	1
CIVE 1100	Civil Engineering Measurements	3
CET 1100	Building Information Modeling	3
MATH 1850	Single Variable Calculus I	4
	Hours	**15**
Second Term		
CIVE 2000	Professional Development	1
ENGL 1110	College Composition I	3
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
	Hours	**16**
Third Term		
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
	Hours	**1**
Fifth Term		
CIVE 1160	Engineering Mechanics: Strength Of Materials	3
MATH 2860	Elementary Differential Equations	3
MIME 2300	Engineering Dynamics	3
Arts/Humanities/Social Science Core		3
ENGL 2950	Technical Writing	3
	Hours	**15**
Sixth Term		
CIVE 3940 Second Co-op Experience		1
	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
	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
	Hours	**15**
	Total Hours	**130**

- 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 Construction Engineering Technology

overview

The Bachelor of Science in Construction Engineering Technology at UToledo is an ABET-accredited program that prepares graduates for careers in the construction, operation, and maintenance of the built environment and infrastructure. The program emphasizes both construction management (e.g., estimating, contracts, project management) and civil engineering concepts applicable to construction.

Graduates gain skills in using construction documents, specifying materials and methods, performing cost analysis, and managing construction activities. They can pursue careers in five key sectors:

- Construction Management – Most graduates work with contractors or management firms, overseeing construction projects from start to finish.
- Consulting – Focuses on designing construction documents and coordinating the design process, often assisting project owners during construction.
- Government Agencies – Involves managing public projects, setting design standards, and maintaining infrastructure at various governmental levels.
- Materials Supply – Involves technical sales, logistics, and product development for construction materials.
- Facilities Management – A smaller group works within organizations to maintain and upgrade physical infrastructure, often managing internal construction projects.

Code	Title	Hours
CET 1100	Building Information Modeling	3
CET 1150	Construction Materials and Systems	3
CIVE 1000	Freshman Civil Engineering Experience	1
CIVE 1100	Civil Engineering Measurements	3
CIVE 1150	Engineering Mechanics: Statics	3
CIVE 1160	Engineering Mechanics: Strength Of Materials	3
CIVE 2000	Professional Development	1
CIVE 2110	Civil Engineering Materials With Laboratory	3
CIVE 3210	Soil Mechanics	3
CIVE 3220	Foundation Engineering	3
GNEN 1800	Engineering Applications of Mathematics	3
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
MATH 1850	Single Variable Calculus I	4
CET 1250	Building Systems	3
CET 2010	Construction Safety	1
CET 2030	Construction Graphics	3
CET 2060	Construction Estimating	3
CET 2250	Structural Design	4
CET 3010	Advanced Building Information Modeling	4
CET 3210	Surveying Applications	3
CET 3120	Advanced Construction Materials	3
CET 3160	Construction Contracts	3
CET 3220	Hydrology And Hydraulics	3
CET 4250	Advanced Structural Design	4
CET 4460	Construction Management And Scheduling	3
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
ENGT 3010	Applied Statistics And Design Of Experiments	4
ENGT 3600	Engineering Economics	3
ENGT 4050	Senior Technology Capstone	3
MATH 1330	Trigonometry	3
CIVE 3940	Co-Op Experience (Course must be taken 3 times, 1 credit hour per semester)	3
Professional Development Technical Electives		6
BUAD 2040	Financial Accounting Information	
BUAD 2050	Accounting For Business Decision-Making	
BUAD 2080	Global Environment Of Business	
BUAD 3010	Principles Of Marketing	
BUAD 3020	Principles Of Manufacturing And Service Systems	
BUAD 3030	Managerial And Behavioral Processes In Organizations	
BUAD 3040	Principles Of Financial Management	
BUAD 3470	The Legal And Ethical Environment Of Business	
FINA 3060	Personal Finance	
BLAW 3570	The Laws Of Structuring And Operating A Business	
ECON 1150	Principles Of Macroeconomics	
or ECON 1200	Principles Of Microeconomics	
CET 3020	Sustainability for Construction	
MET 4600	Engineering Safety	
COMM Electives		3
COMM 2600	Public Presentations	
COMM 2820	Group Communication	
COMM 2840	Interpersonal Communication	
COMM 3820	Persuasion Theory	
COMM 3880	Professional Business Communication	
University Core Requirements		18
Arts/Humanities Core		
Social Science Core		

Non-US Diversity		
US Diversity		
Natural Science Core Elective		3
Total Hours		**127**

First Term		**Hours**
MATH 1330	Trigonometry	3
CIVE 1000	Freshman Civil Engineering Experience	1
GNEN 1800	Engineering Applications of Mathematics	3
ENGL 1110	College Composition I	3
CET 1100	Building Information Modeling	3
Social Science/Arts/Humanities/Diversity of US Core		3
	Hours	**16**
Second Term		
ENGL 2950	Technical Writing	3
MATH 1850	Single Variable Calculus I	4
PHYS 2130	Physics For Science And Engineering Majors I	4
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
CIVE 1100	Civil Engineering Measurements	3
CIVE 2000	Professional Development	1
	Hours	**16**
Third Term		
CIVE 3940	Co-Op Experience	1
	Hours	**1**
Fourth Term		
CET 1150	Construction Materials and Systems	3
CET 1250	Building Systems	3
CIVE 1150	Engineering Mechanics: Statics	3
Social Science/Arts/Humanities/Non-US Diversity Core		3
COMM Elective		3
	Hours	**15**
Fifth Term		
CET 2060	Construction Estimating	3
CIVE 1160	Engineering Mechanics: Strength Of Materials	3
CET 2010	Construction Safety	1
CET 2030	Construction Graphics	3
Social Science / Arts / Humanities Core		3
	Hours	**13**
Sixth Term		
CIVE 3940	Co-Op Experience	1
	Hours	**1**
Seventh Term		
CET 2250	Structural Design	4
CIVE 2110	Civil Engineering Materials With Laboratory	3
CET 3220	Hydrology And Hydraulics	3
CET 3160	Construction Contracts	3
Natural Science Core		3
	Hours	**16**
Eighth Term		
CET 3010	Advanced Building Information Modeling	4
CET 4250	Advanced Structural Design	4
CET 4460	Construction Management And Scheduling	3
Professional Development or Technical Elective		3
Social Science / Arts / Humanities Core		3
	Hours	**17**
Ninth Term		
CIVE 3940	Co-Op Experience	1
	Hours	**1**
Tenth Term		
CET 3210	Surveying Applications	3
CIVE 3210	Soil Mechanics	3
ENGT 3010	Applied Statistics And Design Of Experiments	4
Professional Development or Technical Elective		3
Social Science / Arts / Humanities Core		3
	Hours	**16**
Eleventh Term		
ENGT 4050	Senior Technology Capstone	3
CET 3120	Advanced Construction Materials	3
CIVE 3220	Foundation Engineering	3
ENGT 3600	Engineering Economics	3
Social Science / Arts / Humanities Core		3
	Hours	**15**
	Total Hours	**127**

- 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.

BS in Environmental Engineering

overview

There's no better time to be an environmental engineer. The National Academy of Engineering identified 14 critical challenges for engineers in the 21st century. Six of them are directly related to the environment. Labs and design projects teach UToledo's Environmental Engineering majors how to solve real problems and implement their ideas. Students often

work with community partners such as schools and inner-city housing projects to develop rain gardens and other green projects.

UToledo's Environmental Engineering bachelor's degree program prepares students to create sustainable cities and protect our air, water and land. We strive to educate environmental engineers to become agents of change — to not only reduce the environmental footprint, but to create a "positive handprint."

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 1150	Engineering Mechanics: Statics	3
CET 1100	Building Information Modeling	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	Sustainable Systems	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	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
Technical Electives		
Engineering Science Technical Electives		6
Choose two courses (minimum of 6 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
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 4240	Soil Science	
EEES 4610	Environmental Geophysics	
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
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 [1]		15
Arts/Humanities Core		
Social Science Core		
Non-US Diversity		
US Diversity		
Total Hours		**130**

[1] 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
	Hours	**15**
Second Term		
CHEE 2010	Mass And Energy Balances	3
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
CIVE 2000	Professional Development	1
MATH 1860	Single Variable Calculus II	4
CET 1100	Building Information Modeling	3
	Hours	**16**
Third Term		
CHEE 2230	Chemical Engineering Thermodynamics I	3
CIVE 2550	Sustainable Systems	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
	Hours	**18**
Fourth Term		
CIVE 3940 First Co-op Experience		1
	Hours	**1**
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
	Hours	**15**
Sixth Term		
CIVE 3940 Second Co-op Experience		1
	Hours	**1**
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
	Hours	**18**
Eighth Term		
CIVE 3940 Third Co-op Experience		1
	Hours	**1**
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	Waste Management	3
	Hours	**15**
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
	Hours	**15**
Eleventh Term		
CIVE 3630	Wastewater Engineering	3
CIVE 4750	Senior Design Projects	3
Technical Elective		3
Technical Elective		3
EEES Technical Elective		3
	Hours	**15**
	Total Hours	**130**

- 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.

Certificate in Surveying

Code	Title	Hours
CIVE 3720	Boundary Surveying	3
CIVE 3730	Geodetic and Control Surveying	3
CIVE 3760	Route and Construction Surveying	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
Total Hours		**18**

[1] Certificate will require background in CAD. Some pre-requisites may be required, consult department chair or undergraduate director for override details.

- Able to answer questions about Official Surveys of the United States.
- Able to answer questions about establishment and retracement of Public Land Survey System Surveys and Colonial Land Surveys.
- Able to answer questions about history of Land Systems in the United States and Original Ohio Land Subdivisions.
- Able to review the Official Surveys of the United States.
- Complete Route Surveying and Geometric Design including Horizontal, Vertical and Spiral Curves, Topographic Surveying and Mapping, Earthwork Volumes, and Construction Layout and Staking.
- Demonstrate knowledge of and analyze 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.
- Analyze Land Boundaries, Locating Points and Line for Boundaries, Historical Development of Boundaries.
- Analyze and interpret Rectangular System of Public Land Surveys, Systems to Describe Properties.
- Apply of Legal Principles to Boundary Analysis.

Minor in Construction Management

Code	Title	Hours
CET 1100	Building Information Modeling	3
CET 2060	Construction Estimating	3
CET 3010	Advanced Building Information Modeling	4
CET 3160	Construction Contracts	3
CET 4460	Construction Management And Scheduling	3
ENGT 3600	Engineering Economics [1]	3
Total Hours		**19**

[1] This course cannot be substituted with ECON 1150, ECON 1200 or both

- 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.

- 1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics#(EAC C3 Student Outcome 3.1)
- 2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, welfare, as well as global, cultural, social, environmental, and economic factors#(EAC C3 Student Outcome 3.2)
- 3. An ability to communicate effectively with a range of audiences#(EAC C3 Student Outcome 3.3)
- 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#(EAC C3 Student Outcome 3.4)
- 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#(EAC C3 Student Outcome 3.5)# \n
- 6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions#(EAC C3 Student Outcome 3.6)
- 7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies#(EAC C3 Student Outcome 3.7)

Minor in Environmental Engineering

OVERVIEW

A minor in Environmental Engineering enables you to broaden your career and graduate study opportunities related to analyzing and designing systems for protection of our air, water, and land resources. Consulting and industrial companies may hire non-environmental engineers to work on environmental projects. Completing this minor would give you a competitive advantage for these positions and for graduate programs involving environmental engineering or science.

You may earn a minor in Environmental Engineering by completing five required courses. For additional details consult Academic Advisor Kyle Sawyer (kyle.sawyer@utoledo.edu) or Undergraduate Program Director Alex Spivak (alex.spivak@utoledo.edu). To be eligible to register for the minor, you must be coded as an Environmental Engineering minor candidate and maintain a GPA of 2.0 or better in the courses used to satisfy the requirements of the minor. Civil Engineering students are not eligible for the Environmental Engineering minor.

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	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	
Total Hours		**15**

- 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 theses 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	3
CIVE 3760	Route and Construction Surveying	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
Total Hours		**18**

Department of Electrical Engineering and Computer Science

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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. 47)
- BS in Computer Science and Engineering (p. 50)
- BS in Computer Science and Engineering Technology (p. 54)
- BS in Cyber Security (p. 56)
- BS in Electrical Engineering (p. 58)
- BS in Electrical Engineering Technology (p. 61)
- BS in Information Technology (p. 62)
- Minor in Computer Science (p. 64)
- Minor in Cyber Security (p. 64)
- Minor in Software Engineering (p. 65)

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 bride 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, Realtext, Realpix and XML. The course also covers Frames, META Tags, Optimizing Speed, Cookies, Imagemapping (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: Spring, 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

CYBR 1400 Ethical Behavior in Computing
[4 credit hours]
This course will teach the ethical dilemmas for computer use, the software engineering code of ethics and professional practice, and basic rules for computer ethics. The course will focus on the commitment software engineers have to the public, client and employer, product, judgement, management, profession, colleagues, and self.
Term Offered: Spring, Fall

CYBR 2000 Cyber Law & Compliance, Intro to Cryptoanalysis & Generic Attacks
[4 credit hours]
An in-depth examination of the law dealing with computers and the Internet, including such issues as intellectual property, electronic commerce, information privacy, freedom of expression, cyber crime and jurisdiction. Included are detailed analyses of significant legal case studies plus review of applicable federal and state legislation. The course addresses key concepts in building and breaking ciphers by making, testing, securing and cracking programs that encrypt text with classical ciphers like the transposition cipher, Vigenère cipher, etc. Students will learn about major topics in crypt analysis. Also, students will study and analyze attack methods and algorithms in crypt analysis.
Prerequisites: CSET 1100 with a minimum grade of D-
Term Offered: Spring, Fall

CYBR 2410 Digital Forensics
[3 credit hours]
This course trains students on the procedures and techniques used to identify, extract, validate, document and preserve electronic evidence. Students completing this course will be familiar with the core computer science theory and practical skills necessary to perform basic computer forensic investigations, understand the role of technology in investigating computer-based crime, and be prepared to deal with investigative bodies at a basic level.
Prerequisites: CSET 1100 with a minimum grade of D-
Term Offered: Fall

CYBR 3200 Client-Server Security Models
[3 credit hours]
This course trains students to systematically identify vulnerabilities, analyzing their occurrence, make corrective action options, evaluate from the aspect of the client/server model, and discuss and implement prescriptive software security designs.
Prerequisites: CYBR 2410 with a minimum grade of D-
Term Offered: Spring, Fall

CYBR 3350 Managing Security Projects
[3 credit hours]
This course trains students on best practices on how institutions and organizations manage information risk through risk assessment practices and procedures.
Prerequisites: CYBR 2410 with a minimum grade of D-
Term Offered: Spring, Fall

CYBR 4200 Software Assurance
[4 credit hours]
Practices for ensuring quality through the software process. Topics include requirements elicitation, analysis and documentation, testing, and quality assurance management.
Prerequisites: CSET 3600 with a minimum grade of D-
Term Offered: Spring, Fall

CYBR 4500 Risk Vulnerability Analysis
[3 credit hours]
This course teaches risk vulnerabilities in an information network. Topics include administrating Linux and Microsoft servers together to provide infrastructure services to mixed clients. Topics covered are DNS; DHCP; file, web, mail, and directory security of these services; and best practices for combining and mixing server platforms in an enterprise environment.
Prerequisites: INFS 3400 with a minimum grade of D-
Term Offered: Spring, Fall

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
[4 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/subtracters 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 2010 Introduction to Artificial Intelligence
[3 credit hours]
This course combines lectures with interactive, hands-on activities using AI programs and vibecoding tools to introduce students to the fundamentals of AI and popular tools. It covers the basics of AI, machine learning, deep learning, generative AI, and data science. Students will develop practical skills alongside theoretical knowledge and will engage in ethical discussions about AI applications.
Term Offered: Spring, Summer, 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 couse. 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-) or (CSET 1200 with a minimum grade of D- and CSET 2230 with a minimum grade of D-)
Term Offered: Spring, Fall

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 2110 with a minimum grade of D- or CSET 2230 with a minimum grade of D-
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 propeties 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, Transmision, 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- or EECS 3540 with a minimum grade of D- or CSET 3150 with a minimum grade of D- or CSET 3300 with a minimum grade of D- or CSET 3250 with a minimum grade of D- or EET 3350 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
[4 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 3540 with a minimum grade of D- or CSET 2200 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- or MATH 2600 with a minimum grade of D- or MIME 4000 with a minimum grade of D- or ENGT 3010 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, Fall

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 contempoary 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
[3 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.
Prerequisites: EECS 3540 with a minimum grade of D-
Term Offered: Spring

EECS 4530 Computer Graphics I
[3 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.
Prerequisites: EECS 2510 with a minimum grade of D-
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 or CSET 2230 with a minimum grade of D)
Term Offered: Spring, Fall

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
[3 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-
Term Offered: Spring, Summer, Fall

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- or CSET 2200 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 mult-agent environments.
Prerequisites: EECS 2510 with a minimum grade of D-
Term Offered: Spring, Fall

EECS 4750 Machine Learning
[3 credit hours]
This course covers machine learning algorithms, theory and applications for decision tree, neural network, computational, Bayesian, evolutionary, and reinforcement learning.
Prerequisites: (MATH 1890 with a minimum grade of D- or MATH 2890 with a minimum grade of D-) and (MIME 4000 with a minimum grade of D- or EECS 3300 with a minimum grade of D- or MATH 4680 with a minimum grade of D- or MATH 2600 with a minimum grade of D-) and (EECS 1030 with a minimum grade of D- or CSET 1100 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 4770 Computer Hacking and Forensic Analysis
[3 credit hours]
This course is an introduction to discovering vulnerabilities, attacking/defending systems, responding to attacks, and identifying/designing controls for attack prevention. Topics include the evolution of hacking, penetration testing; cryptology; footprinting; vulnerability scanning and exploit; wireless, web, and database attacks; traffic analysis; incident response; and defensive technologies and controls.
Prerequisites: EECS 4720 (may be taken concurrently) with a minimum grade of D-
Term Offered: Spring, 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 4830 Artificial Neural Networks and Deep Learning
[3 credit hours]
This course deals with various neural network architectures and learning algorithms for the training networks. Topics include perceptron, basic learning algorithms, the delta learning rule, multilayer feed forward NNs, backpropagation and gradient decent algorithm, cost functions, overfitting, regularization, and convolutional networks.
Prerequisites: EECS 4750 with a minimum grade of D- or (MATH 1890 with a minimum grade of D- or MATH 2890 with a minimum grade of D-) and EECS 2510 with a minimum grade of D-
Term Offered: Spring, Fall

EECS 4840 Generative AI and Large Language Models
[3 credit hours]
This course explores generative AI with a focus on large language models (LLMs). Students will learn the theoretical foundations and practical applications of LLMs, including hands-on experience with open-source models like LLaMA 3 using Python. The course covers key applications in natural language processing, creative content generation, and other AI-driven fields. Ethical considerations and responsible AI practices are emphasized to prepare students for real-world challenges in advanced AI technologies.
Prerequisites: (MATH 1890 with a minimum grade of D- or MATH 2890 with a minimum grade of D-) and EECS 2510 with a minimum grade of D-
Term Offered: Spring, Fall

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

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

EET 4700 Electric-Vehicle Systems & Charging Infrastructure
[4 credit hours]
Design, integration, and validation of battery#electric drivetrains and Level#2 charging systems. Because the Switch EV is shared with MIME, physical access is limited to a two#week intensive block (Weeks#3#4); other drivetrain labs use Hardware#in#the#Loop (HIL) and the AutoEDU battery stand. This course provides hands-on activities on EV, batteries, and Level 2 EV charging station. Students will gain knowledge of EV components such as batteries, electric motors, inverters,
Prerequisites: EET 4350 with a minimum grade of D-
Term Offered: Fall

EET 4750 Renewable-Energy Microgrids for e-Mobility
[4 credit hours]
Integration of solar photovoltaic (PV), wind, and battery storage to supply EV charging in resilient microgrids. The Switch EV appears only in Week#11 for a live renewable#powered charging demo; all other labs rely on EMS trainers and the AutoEDU pack.
Prerequisites: EET 4700 (may be taken concurrently) with a minimum grade of D-
Term Offered: Spring

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

BS in Computer Science

overview

Computer Science: Leading the Digital Frontier in AI, Cybersecurity, and Data.

Computer Science is the engine of the digital revolution, powering Generative AI, advanced
cybersecurity, big data analytics,and intelligent systems. Demand for CS professionals is
unstoppable, and UToledo positions you at the forefront. Our rigorous program provides a strong
foundation in computing theory and application. Our curriculum covers current areas such
as AI/Machine Learning, Computer and Network Security, Data Structures and
Algorithms, Operating Systems, Databases, and Software Engineering. Students have opportunities
to explore faculty research areas like AI-human collaborations, cyber threat detection, high performance computing, and bioinformatics. Our program emphasizes entrepreneurship and experiential learning, and students learn through innovation challenges and senior design projects with
commercial potentials and industry partners. Choose UToledo Computer Science and code your future
in exciting technology areas.

- Computer Science, BS
- Computer Science - AI Concentration, BS

Computer Science, BS

Code	Title	Hours
ECON 1150	Principles Of Macroeconomics	3
or ECON 1200	Principles Of Microeconomics	
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**

Computer Science - AI Concentration, BS

Code	Title	Hours
ECON 1150	Principles Of Macroeconomics	3
or ECON 1200	Principles Of Microeconomics	
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 2600	Introduction To Statistics	3
or MIME 4000	Engineering Statistics I	
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 2010	Introduction to Artificial Intelligence	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 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 4590	Algorithms	3
EECS 4180	Computer Networks	4
EECS 4740	Artificial Intelligence	3
EECS 4750	Machine Learning	3
EECS 4830	Artificial Neural Networks and Deep Learning	3
EECS 4840	Generative AI and Large Language Models	3
EECS 4760	Computer Security	3
EECS 3940	Co-Op Experience	1
EECS 3940	Co-Op Experience	1
EECS 3940	Co-Op Experience	1
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		9
UT Core/US Diversity		3
Total Hours		**131**

Combined bachelor's to master's- Computer Science and Engineering

Undergraduate students accepted to the **BS Computer Science to MS Computer Science and Engineering** option will be admitted to the **MS in Computer Science and Engineering** 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) Any EECS course that is offered at both 4/5 level 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.

- Computer Science, BS (p. 47)
- Computer Science - AI Concentration, BS

Computer Science, BS

First Year

First Term		Hours
ECON 1200 or ECON 1150	Principles Of Microeconomics 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 or ENGL 2960	Technical Writing 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
	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
	Hours	**1**

Second Term		
EECS 3540	Operating Systems And Systems Programming	3
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
	Hours	**1**

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
	Hours	**1**

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**

Computer Science - AI Concentration, BS

First Year

First Term		Hours
ECON 1200 or ECON 1150	Principles Of Microeconomics 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 with Lab		4
EECS 1510	Introduction To Object Oriented Programming	4
EECS 2000	EECS Professional Development	1
ENGL 2950 or ENGL 2960	Technical Writing or Professional and Business Writing	3

MATH 1860	Single Variable Calculus II	4
	Hours	**16**
Second Year		
First Term		
Natural Science Core		3
EECS 1100	Digital Logic Design	4
EECS 2500	Linear Data Structures	4
MATH 2850	Elementary Multivariable Calculus	4
EECS 2010	Introduction to Artificial Intelligence	3
	Hours	**18**
Second Term		
EECS 3940	Co-Op Experience	1
	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
MATH 2600	Introduction To Statistics	3
	Hours	**16**
Third Year		
First Term		
EECS 3940	Co-Op Experience	1
	Hours	**1**
Second Term		
Social Science Core Elective		3
EECS 3540	Operating Systems And Systems Programming	3
EECS 3560	Programming Languages and Paradigms	3
EECS 4740	Artificial Intelligence	3
EECS 4750	Machine Learning	3
	Hours	**15**
Third Term		
EECS 3940	Co-Op Experience	1
	Hours	**1**
Fourth Year		
First Term		
Non- US Diversity Core Elective		3
US Diversity Core Elective		3
EECS 3xxx/4xxx Electives		3
EECS 4180	Computer Networks	4
EECS 4830	Artificial Neural Networks and Deep Learning	3
	Hours	**16**
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 4840	Generative AI and Large Language Models	3
EECS 3xxx/4xxx Elective		3
	Hours	**16**
Fifth Year		
First Term		
EECS 4020	Senior Design Project II	3
EECS 4590	Algorithms	3
EECS 4760	Computer Security	3
Arts/Humanities Core Elective		3
EECS 4xxx Technical Elective		3
	Hours	**15**
	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.

BS in Computer Science and Engineering

overview

Computer Science and Engineering: Bridging Hardware and Software for Next-Gen Systems.

Students master both hardware and software with a Computer Science and Engineering (CSE) degree,
essential for creating complex systems in autonomous vehicles, robotics, IoT embedded
systems, data centers, and smart grids. UToledo's CSE program offers a comprehensive, integrated
education. Our curriculum blends computer science theory and practice with electrical engineering
design skills. Students learn to design and build physical components and their software. Students have
opportunities to explore faculty research areas like AI-enabled industry processes, IoT, cyber-physical
systems, high-performance computing systems, autonomous vehicles, and computer architecture.
Our program emphasizes entrepreneurship and experiential learning, and students learn through
innovation challenges and senior design projects with commercial potentials and industry

partners. Graduates are uniquely equipped to develop innovative solutions requiring a deep
understanding of hardware/software interaction and integration. Choose UToledo CSE and build the
integrated technologies of tomorrow.

Computer Science and Engineering (p. 51)
Computer Science and Engineering - Microelectronics Security Concentration (p. 51)

Computer Science and Engineering

Code	Title	Hours
ECON 1150	Principles Of Macroeconomics	3
or ECON 1200	Principles Of Microeconomics	
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
CHEM 1230	General Chemistry I	4
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
PHIL 1010	Introduction To Logic	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
EECS 1100	Digital Logic Design	4
EECS 1030	Introduction to Computer Science and Engineering	4
EECS 1510	Introduction To Object Oriented Programming	4
EECS 2000	EECS Professional Development	1
EECS 2110	Computer Architecture and Organization	3
EECS 2300	Electric Circuits	4
EECS 2500	Linear Data Structures	4
EECS 2510	Non-Linear Data Structures	4
EECS 2520	Discrete Structures	3
EECS 3100	Embedded Systems	4
EECS 3150	Data Communications	3
EECS 3210	Signals and Systems	3
EECS 3400	Electronics I	4
EECS 3540	Operating Systems And Systems Programming	3
EECS 3550	Software Engineering	3
EECS 3940	Co-Op Experience	1
EECS 3940	Co-Op Experience	1
EECS 3940	Co-Op Experience	1
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 4760	Computer Security	3
MIME 4000	Engineering Statistics I	3
Technical Elective		3
Technical Elective		3
Technical Elective		2
Non-US Diversity		3
Arts/Humanities Core/Diversity of US		3
Social Sciences Core		3
Total Hours		**131**

Computer Science and Engineering - Microelectronics Security Concentration

Code	Title	Hours
ECON 1150	Principles Of Macroeconomics	3
or ECON 1200	Principles Of Microeconomics	
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
MATH 2890	Numerical Methods And Linear Algebra	3
CHEM 1230	General Chemistry I	4
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
PHIL 1010	Introduction To Logic	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
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 2300	Electric Circuits	4
EECS 2500	Linear Data Structures	4
EECS 2510	Non-Linear Data Structures	4
EECS 2520	Discrete Structures	3
EECS 3150	Data Communications	3
EECS 3210	Signals and Systems	3
EECS 3400	Electronics I	4
EECS 3540	Operating Systems And Systems Programming	3
EECS 3550	Software Engineering	3
EECS 3940	Co-Op Experience	1
EECS 3940	Co-Op Experience	1
EECS 3940	Co-Op Experience	1
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 4760	Computer Security	3
MIME 4000	Engineering Statistics I	3

Required for the Microelectronics Security Concentration		15
EECS 2110	Computer Architecture and Organization	
EECS 3100	Embedded Systems	
EECS 4050	VLSI and FPGA System Design & Applications	
EECS 4720	Fundamentals of Cyber Security	
EECS 4800	Assured and Trusted Digital Microelectronics	
Non-US Diversity		3
Arts/Humanities Core/Diversity of US		3
Social Sciences Core		3

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

Computer Science and Engineering (p. 52)
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	4
PHIL 1010	Introduction To Logic	3
	Hours	**18**
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
ENGL 2950	Technical Writing	3
	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 1890	Elementary 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
	Hours	**1**
Sixth Term		
EECS 2510	Non-Linear Data Structures	4
EECS 3210	Signals and Systems	3
EECS 3400	Electronics I	4
Social Sciences Core		3
	Hours	**14**
Seventh Term		
EECS 3940	Co-Op Experience	1
	Hours	**1**
Eighth Term		
EECS 3100	Embedded Systems	4
EECS 3150	Data Communications	3
MIME 4000 or MATH 2600	Engineering Statistics I or Introduction To Statistics	3
ECON 1150 or ECON 1200	Principles Of Macroeconomics or Principles Of Microeconomics	3
Arts/Humanities Core/Diversity of US		3
	Hours	**16**
Ninth Term		
EECS 3940	Co-Op Experience	1
	Hours	**1**
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		2
	Hours	**15**
Eleventh Term		
EECS 4020	Senior Design Project II	3
Technical Elective		3
Technical Elective		3
Non-US Diversity		3
EECS 4760	Computer Security	3
	Hours	**15**
	Total Hours	**131**

Computer Science and Engineering - Microelectronics Security Concentration

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
ENGL 2950	Technical Writing	3
	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
	Hours	**1**
Sixth Term		
EECS 2510	Non-Linear Data Structures	4
EECS 3210	Signals and Systems	3
EECS 3400	Electronics I	4
Social Sciences Core		3
	Hours	**14**
Seventh Term		
EECS 3940	Co-Op Experience	1
	Hours	**1**
Eighth Term		
EECS 3100	Embedded Systems	4
EECS 3150	Data Communications	3
MIME 4000	Engineering Statistics I	3
ECON 1150 or ECON 1200	Principles Of Macroeconomics or Principles Of Microeconomics	3
Arts/Humanities Core/Diversity of US		3
	Hours	**16**
Ninth Term		
EECS 3940	Co-Op Experience	1
	Hours	**1**
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
	Hours	**16**
Eleventh Term		
EECS 4020	Senior Design Project II	3
Technical Elective		3
Technical Elective		3
Non-US Diversity		3
EECS 4760	Computer Security	3
	Hours	**15**
	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 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.

- Computer Science and Engineering Technology, BS
- Computer Science and Engineering Technology, BS - Cyber Security concentration (p. 54)

Computer Science and Engineering Technology, BS

Code	Title	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
CSET 1200	Object Oriented Programming and Data Structures	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
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
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 3150	Introduction to Algorithms	4
CSET 3300	Database-Driven Web Sites	4
CSET 3600	Software Engineering and Human Interfacing	4
CSET 4350	Operating Systems	3
CSET 4750	Computer Networks And Data Communication	4
CSET 4250	Applied Programming Languages	3
ENGT 4050	Senior Technology Capstone	3
CSET 4850	Computer and Network Security	4
Professional Development Elective		
CSET Technical Elective		
Communication Elective		
University Core		

Computer Science and Engineering Technology, BS - Cyber Security concentration

Code	Title	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
CSET 1200	Object Oriented Programming and Data Structures	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
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
ENGT 3050	Fundamentals Of Electricity	4
MATH 2640	Statistics for Applied Science	3
CSET 2520	Discrete Structures	3
EET 2410	Mechatronics I	4
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 3150	Introduction to Algorithms	4
CSET 3300	Database-Driven Web Sites	4
CSET 3600	Software Engineering and Human Interfacing	4
CSET 4350	Operating Systems	3
CSET 4750	Computer Networks And Data Communication	4
CSET 4250	Applied Programming Languages	3
ENGT 4050	Senior Technology Capstone	3
Communication Elelctive		
Professional Development Elective		
Technical Elective		

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.

- Computer Science and Engineering Technology, BS
- Computer Science and Engineering Technology, BS - Cyber Security concentration

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
	Hours	**15**
Second Term		
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
	Hours	**18**
Third 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
CSET 2230	Assembly Language and Computer Architecture	4
	Hours	**17**
Fourth Term		
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
	Hours	**18**
Fifth Term		
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
	Hours	**15**
Sixth Term		
Natural Sciences Core		4
CSET 3150	Introduction to Algorithms	4
CSET 3300	Database-Driven Web Sites	4
	Hours	**12**
Seventh Term		
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
	Hours	**17**
Eighth Term		
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
	Hours	**16**
	Total Hours	**128**

Computer Science and Engineering Technology, BS - 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
	Hours	**15**
Second Term		
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
	Hours	**18**
Third Term		
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
	Hours	**17**
Fourth Term		
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
	Hours	**18**
Fifth Term		
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
	Hours	**15**
Sixth Term		
Natural Sciences Core		4
CSET 3150	Introduction to Algorithms	4
CSET 3300	Database-Driven Web Sites	4
	Hours	**12**
Seventh Term		
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
	Hours	**17**
Eighth Term		
Professional Development Elective		3
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
	Hours	**16**
	Total Hours	**128**

- 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 Cyber Security

Overview

Our Bachelor of Science in Cyber Security is a four-year undergraduate program that targets requirements for entry-level cyber security jobs including information security analyst, cybersecurity developer, security administrator, security engineer, penetration tester and others.

The curriculum includes core cyber security courses to prepare students with strong cyber security foundations and equip them with practical cyber security skills. Students in this program will have access to the cutting-edge cyber security lab, cyber forensics and machine learning lab, and Engineering Computing Labs. Our faculty are active in cyber security research and bring their expertise into the classroom. Many courses in the curriculum have hands-on lab and/or research project components so that students can develop practical skills to solve real-world cybersecurity problems. In the capstone class, students will form a group and design/develop cybersecurity applications that can be used in real-life scenarios. Outside the classroom, students can gain professional skills through doing internship in a company or participating in a research project led by the faculty member or joining the UToledo Cyber Security Club to practice the cybersecurity skills to benefit the UToledo community.

Program students will also have the opportunity to enroll in the early admission B.S./M.S. program to get a full year head start in earning their Master of Science in Cyber Security degree at the University of Toledo.

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	Information Security, Data Governance, & Ethics in AI	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
EECS 4770	Computer Hacking and Forensic Analysis	3
EECS 4740	Artificial Intelligence	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
ENGT 4050	Senior Technology Capstone	3
CSET 4850	Computer and Network Security	4
Total Hours		**123**

Combined bachelor's to master's- Cyber Security

Undergraduate students accepted to the **BS to MS in Cyber Security** option will be admitted to the **MS in Cyber Security** 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) EECS 5720, EECS 5770, and EECS 5740 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.

First Year		
First Term		**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		3
	Hours	**14**
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
	Hours	**14**

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
	Hours	**16**
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
	Hours	**17**
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
	Hours	**14**
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
	Hours	**15**
Fourth Year		
First Term		
INFS 3400	Information Security, Data Governance, & Ethics in AI	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
	Hours	**17**
Second Term		
Humanities/Multicultural Elective		3
EECS 4770	Computer Hacking and Forensic Analysis	3
EECS 4740	Artificial Intelligence	3
ENGT 4050	Senior Technology Capstone	3
CSET 4850	Computer and Network Security	4
	Hours	**16**
	Total Hours	**123**

- 1. An ability to analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.
- 2. An ability to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- 3. An ability to communicate effectively in a variety of professional contexts.
- 4. An ability to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- 5. An ability to function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- 6. An ability to apply security principles and practices to maintain operations in the presence of risks and threats.

BS in Electrical Engineering

overview

Electrical Engineering: Powering Innovation in Energy, Connectivity, and Smart Tech.

Electrical Engineering designs the infrastructure of the future. This field drives innovation in renewable
energy integration,machine electrifications, next-generation communications, semiconductor and
microelectronics, and autonomous systems. UToledo's EE program enables students to gain expertise
in electricity, electronics, and electromagnetics. Our curriculum covers current areas such as power
electronics and systems, semiconductors and sensors, embedded systems, and modern
communications, and prepare students for co-op and career development. Students have opportunities
to explore faculty research areas like grid-scale energy storage, high-efficiency power
conversion, plasma and metamaterials, RF electronics and wireless communications, and hardware security. Our program emphasizes entrepreneurship and experiential
learning, and students learn through innovation challenges and senior design projects with commercial
potentials and industry partners. Join UToledo EE and power the next wave of technological
advancement

Electrical Engineering (p. 58)
Electrical Engineering - Assured Digital Microelectronics Concentration, BS (p. 59)

Electrical Engineering

Add required content during next program modification.

Electrical Engineering - Assured Digital Microelectronics Concentration, BS

Code	Title	Hours
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	Principles Of Microeconomics	
ENGL 1110	College Composition I	3
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
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
MATH 2850	Elementary Multivariable Calculus	4
MATH 2890	Numerical Methods And Linear Algebra	3
EECS 2300	Electric Circuits	4
EECS 3940	Co-Op Experience	1
EECS 3210	Signals and Systems	3
EECS 3220	Electric Circuits II	3
EECS 3400	Electronics I	4
EECS 3710	Electromagnetics I	3
EECS 3940	Co-Op Experience	1
EECS 3420	Electronics II	3
CIVE 1150	Engineering Mechanics: Statics	3
or MIME 3400	Thermodynamics I	
EECS 3940	Co-Op Experience	1
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 3480	Energy Conversion Laboratory	1
EECS 4020	Senior Design Project II	3
EECS 4360	Communication Systems	3
EECS 4600	Solid State Devices	4
Required for the Assured Digital Microelectronics Concentration		15
EECS 2110	Computer Architecture and Organization	
EECS 3100	Embedded Systems	
EECS 4050	VLSI and FPGA System Design & Applications	
EECS 4720	Fundamentals of Cyber Security	
EECS 4800	Assured and Trusted Digital Microelectronics	
Arts/Humanities Core		
Non-US Diversity		
Diversity of US		

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

Electrical Engineering (p. 59)
Electrical Engineering - Assured Digital Microelectronics Concentration, BS (p. 60)

Electrical Engineering

First Term		Hours
MATH 1850	Single Variable Calculus I	4
CHEM 1230	General Chemistry I	4
EECS 1000	Introduction to Electrical Engineering	3
ECON 1150 or ECON 1200	Principles Of Macroeconomics or Principles Of Microeconomics	3
ENGL 1110	College Composition I	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 1500	Introduction to Programming	3
ENGL 2950	Technical Writing	3
	Hours	**16**
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
Arts/Humanities Core		3
	Hours	**16**
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
Diversity of US		3
	Hours	**16**
Fifth Term		
EECS 3940	Co-Op Experience	1
	Hours	**1**
Sixth Term		
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
	Hours	**16**
Seventh Term		
EECS 3940	Co-Op Experience	1
	Hours	**1**
Eighth Term		
EECS 3100	Embedded Systems	4
EECS 3420	Electronics II	3
EECS 3460	Electrical Energy Conversion	3
CIVE 1150 or MIME 3400	Engineering Mechanics: Statics or Thermodynamics I	3
Social Sciences Core		3
	Hours	**16**
Ninth Term		
EECS 3940	Co-Op Experience	1
	Hours	**1**
Tenth Term		
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
	Hours	**14**
Eleventh Term		
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
	Hours	**17**
	Total Hours	**131**

Electrical Engineering - Assured Digital Microelectronics Concentration, BS

First Term		**Hours**
MATH 1850	Single Variable Calculus I	4
CHEM 1230	General Chemistry I	4
EECS 1000	Introduction to Electrical Engineering	3
ECON 1150 or ECON 1200	Principles Of Macroeconomics or Principles Of Microeconomics	3
ENGL 1110	College Composition I	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 1500	Introduction to Programming	3
ENGL 2950	Technical Writing	3
	Hours	**16**
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
Arts/Humanities Core		3
	Hours	**16**
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
Diversity of US		3
	Hours	**16**
Fifth Term		
EECS 3940	Co-Op Experience	1
	Hours	**1**
Sixth Term		
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
	Hours	**16**
Seventh Term		
EECS 3940	Co-Op Experience	1
	Hours	**1**
Eighth Term		
EECS 3100	Embedded Systems	4
EECS 3420	Electronics II	3
EECS 3460	Electrical Energy Conversion	3
CIVE 1150 or MIME 3400	Engineering Mechanics: Statics or Thermodynamics I	3
Social Sciences Core		3
	Hours	**16**
Ninth Term		
EECS 3940	Co-Op Experience	1
	Hours	**1**
Tenth Term		
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
	Hours	**14**
Eleventh Term		
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
	Hours	**17**
	Total Hours	**131**

- 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.

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.

Code	Title	Hours
EECS 1000	Introduction to Electrical Engineering	3
MATH 1330	Trigonometry	3
ENGL 1110	College Composition I	3
EET 1010	DC Circuits	4
CHEM 1230	General Chemistry I	4
ENGL 2950	Technical Writing	3
EET 1020	AC Circuits	4
MET 1250	Computer Aided Drafting and Design	3
EET 2210	Digital Logic Fundamentals	4
EET 2010	Electronic Principles	4
MATH 2450	Calculus For Engineering Technology I	4
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
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	0-4
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
EET 3250	Network Analysis	3
MET 2100	Statics For Technology	3
EET 3350	Embedded Systems Design	4
EECS 4010	Senior Design Project I	1
EET 4450	Automatic Control Systems	4
EECS 4020	Senior Design Project II	3

Student must also complete University Core, Comm Elect, Professional Dev Elect

First Term		Hours
EECS 1000	Introduction to Electrical Engineering	3
MATH 1330	Trigonometry	3
ENGL 1110	College Composition I	3
EET 1010	DC Circuits	4
Arts/Humanities/Social Science Core		3
	Hours	**16**
Second Term		
ENGL 2950	Technical Writing	3
EET 1020	AC Circuits	4
MET 1250	Computer Aided Drafting and Design	3
EET 2210	Digital Logic Fundamentals	4
Arts/Humanities/Social Science Core		3
	Hours	**17**
Third Term		
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
	Hours	**16**
Fourth Term		
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
	Hours	**17**
Fifth Term		
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
	Hours	**18**
Sixth Term		
CHEM 1230	General Chemistry I	4
EET 3250	Network Analysis	3
EET 3350	Embedded Systems Design	4
Diversity of US/Arts/Humanities/Social Science Core		3
	Hours	**14**
Seventh Term		
EECS 4010	Senior Design Project I	1
EET 4350	Electric Power Systems	4
EET Technical Elective		4
Arts/Humanities/Social Science Core		3
Arts/Humanities/Social Science Core/Non-US Diversity		3
	Hours	**15**
Eighth Term		
Elective - Professional Development		4
EET 4450	Automatic Control Systems	4
EECS 4020	Senior Design Project II	3
EET Technical Elective		4
	Hours	**15**
	Total Hours	**128**

- 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.

- Information Technology, BS (p. 62)
- Information Technology- Cyber Security Concentration, BS (p. 62)

Information Technology, BS

Please, see the list of courses in the plan of study.

Information Technology- Cyber Security Concentration, BS

Code	Title	Hours
CSET 4850	Computer and Network Security	4
ENGT 4050	Senior Technology Capstone (students need to choose Cyber Security related projects)	3
CSET 3300	Database-Driven Web Sites	4

Students declaring a concentration in Cyber Security must take cyber security related projects in CSET 4850, CSET 3300, and ENGT 4050.

- Information Technology, BS (p. 62)
- Information Technology- Cyber Security Concentration, BS (p. 62)

Information Technology, BS

First Term		Hours
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
CSET 3300	Database-Driven Web Sites	4
BUAD 3020	Principles Of Manufacturing And Service Systems	3
CSET 3250	Client-Side Scripting	3
INFS 4300	Machine Learning for Prediction & Classification	3
	Hours	**16**
Seventh Term		
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
	Hours	**16**
Eighth Term		
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
	Hours	**16**
	Total Hours	**128**

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.

First Term		**Hours**
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
Social Sciences Core		3
ECON 1200	Principles Of Microeconomics	3
Natural Sciences Core and Natural Science Core Laboratory		4
ENGL 2950	Technical Writing	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
Communication 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/ Non-US Diversity		3
	Hours	**16**
Sixth Term		
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	Machine Learning for Prediction & Classification	3
	Hours	**16**

Seventh Term		
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
	Hours	**16**
Eighth Term		
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
	Hours	**16**
	Total Hours	**128**

- 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].

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 theses 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
Required Courses (all must be taken at UToledo)		
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
Take 2 from below list (all must be taken at UToledo and some might require additional prerequisites)		**6**
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	
Total Hours		**24**

- 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.

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 theses 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
Total Hours		**23**

First Term		**Hours**
CSET 1100	Introduction to Computer Science and Engineering Technology	4
CSET 1200	Object Oriented Programming and Data Structures	3
	Hours	**7**
Second Term		
CSET 2200	PC and Industrial Networks	4
	Hours	**4**
Third Term		
CSET 4750	Computer Networks And Data Communication	4
	Hours	**4**
Fourth Term		
CSET 4850	Computer and Network Security	4
EECS 4790	Network Security	4
	Hours	**8**
	Total Hours	**23**

- 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 theses 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
	Hours	**0-4**
Second Term		
CSET 1200	Object Oriented Programming and Data Structures	3
	Hours	**3**
Third Year		
First Term		
CSET 3150	Introduction to Algorithms	4
	Hours	**4**
Second Term		
CSET 3600	Software Engineering and Human Interfacing	4
	Hours	**4**
Fourth Year		
First Term		
CSET 4250	Applied Programming Languages	3
	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 Engineering Technology

The programs within the Department of Engineering Technology have been realigned into the corresponding engineering science department. For more information on ET programs, please refer to the department pages identified below:

- **BS in Computer Science and Engineering Technology (CSET)**
  - Department of Electrical Engineering and Computer Science (EECS)
- **BS in Construction Engineering Technology (CET)**
  - Department of Civil and Environmental Engineering (CIEN)
- **BS in Cyber Security**

- Department of Electrical Engineering and Computer Science (EECS)

- **BS in Electrical Engineering Technology**
  - Department of Electrical Engineering and Computer Science (EECS)
- **BS in Information Technology**
  - Department of Electrical Engineering and Computer Science (EECS)
- **BS in Mechanical Engineering Technology**
  - Department of Mechanical, Industrial, and Manufacturing Engineering (MIME)
- **Minor in Cyber Security**
  - Department of Electrical Engineering and Computer Science (EECS)
- **Minor in Software Engineering**
  - Department of Electrical Engineering and Computer Science (EECS)

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. 75)
- BS in Mechanical Engineering Technology (p. 79)
- Materials Science & Engineering, Certificate (p. 81)
- Minor in Mechatronics (p. 81)

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 D- 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

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

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 1020 Orientation to Mechanical Engineering I
[2 credit hours]
An introduction to the mechanical engineering profession with an emphasis on design projects, professionalism, engineering ethics and career opportunities. Orientation to the university campus, study skills and time management.
Term Offered: Fall

MIME 1030 Orientation to Mechanical Engineering II
[2 credit hours]
Course assists in preparing the student for the co-op experience in industry. Social protocol and ethics in industry are reviewed. Resume writing, interview skills, and team-based project skills are developed.
Prerequisites: MIME 1020 with a minimum grade of D-
Term Offered: Spring

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 1110 Introduction to CAD for Mechanical Engineers
[0-4 credit hours]
Techniques for visualization and representation of machine components using 2D drawing and projection, section views, orthographic projection, dimensioning and tolerancing,
Term Offered: Fall

MIME 1120 Intermediate CAD for Mechanical Engineers
[0-4 credit hours]
Techniques for visualization and representation of machine components using solid modeling and projection, section views, orthographic projection, dimensioning and tolerancing, Introduction to higher level 3D CAD systems.
Prerequisites: MIME 1110 with a minimum grade of D- or CIVE 3420 with a minimum grade of D-
Term Offered: Spring

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 3100 Mechanical Design 1 with Lab
[0-8 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. This course contains a laboratory component.
Prerequisites: CIVE 1160 with a minimum grade of D-
Term Offered: Spring, 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 3340 Mechanical Vibrations with Laboratory
[0-8 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. Contains a laboratory component.
Prerequisites: MIME 2300 with a minimum grade of D- and MIME 2900 with a minimum grade of D- or MATH 2860 with a minimum grade of D-
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 3600 Introduction to Thermodynamics with Lab
[0-8 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. Applications to internal combustion engines, gas turbines, Rankin cycle, and a vapor/compression refrigeration cycle. This course will contain a laboratory component.
Prerequisites: PHYS 2140 with a minimum grade of D- and (MATH 2860 (may be taken concurrently) with a minimum grade of D- or MIME 2900 (may be taken concurrently) with a minimum grade of D-)
Term Offered: Spring, Fall

MIME 3610 Fluid Mechanics with Lab
[0-8 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, and aerodynamics. This course will have a laboratory component.
Prerequisites: MIME 3600 with a minimum grade of D- and MIME 2700 (may be taken concurrently) with a minimum grade of D-
Term Offered: Spring, Summer, Fall

MIME 3620 Introduction to Heat Transfer with Lab
[0-8 credit hours]
A 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. This course has a laboratory component.
Prerequisites: MIME 3610 with a minimum grade of D-
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, Fall

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.
Term Offered: Spring, Fall

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 psychometric 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: Spring, 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 4790 The Professional Engineer (PE)
[3 credit hours]
The course is designed to explore and prepare for registration as a Professional Engineer. This course will introduce students to important topics in the Fundamentals of Engineering (FE) exam that might not covered in by a designated in the BSME curriculum such as: the NCEES Model Law (ethics), financial calculations (engineering economics), and probability and statistics. Students will be expected to take the NCEES FE exam at their own expense. Much of this course will involve self-study.
Term Offered: Spring, 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

overview

Empowering future engineers through experiential learning, innovation, interdisciplinarity, and industry-driven#education to solve real-world challenges.

Mechanical engineers are curious about how things work. They are creative problem solvers who design, develop, and improve the technologies that power our lives—from prosthetic limbs and advanced medical devices to autonomous vehicles, intelligent manufacturing systems, and clean energy solutions.

Mechanical Engineering is the broadest field of engineering, intersecting with nearly every other discipline. At UToledo, our students explore diverse areas such as aerospace, robotics, mechatronics, project management, nuclear systems, industrial operations, sustainable energy, and mobility innovation. Alongside technical depth, we emphasize the development of essential soft skills and global perspectives.

Our nationally recognized College of Engineering is built around experiential learning. Through our mandatory, paid co-op program, students graduate with over a full year of industry experience—often with job offers in hand.

We also nurture an entrepreneurial mindset, encouraging students to innovate, collaborate across disciplines, and bring creative solutions to complex challenges. Our graduates are equipped not only to join the workforce but to shape its future—locally, nationally, and globally.

- BS Mechanical Engineering with no concentration (general) (p. 75)
- BS Mechanical Engineering - Aerospace Engineering Concentration (p. 75)
- BS Mechanical Engineering - Mechatronics Concentration (p. 76)

BS Mechanical Engineering with no concentration (general)

Code	Title	Hours
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
MATH 2850	Elementary Multivariable Calculus	4
MATH 2870	Introduction to Differential Equations and Linear Algebra for Engineers	4
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
CIVE 1150	Engineering Mechanics: Statics	3
CIVE 1160	Engineering Mechanics: Strength Of Materials	3
MIME 1020	Orientation to Mechanical Engineering I	2
MIME 1030	Orientation to Mechanical Engineering II	2
MIME 1110	Introduction to CAD for Mechanical Engineers	2
MIME 1120	Intermediate CAD for Mechanical Engineers	2
MIME 1650	Materials Science & Engineering	3
MIME 2300	Engineering Dynamics	3
MIME 2650	Manufacturing Processes	3
MIME 2700	Applied Measure & Instrument	4
MIME 3100	Mechanical Design 1 with Lab	4
MIME 3320	Mechanical Design II	3
MIME 3340	Mechanical Vibrations with Laboratory	4
MIME 3600	Introduction to Thermodynamics with Lab	4
MIME 3380	Modeling and Control of Engineering Systems	3
MIME 3610	Fluid Mechanics with Lab	4
MIME 3620	Introduction to Heat Transfer with Lab	4
MIME 3200	Senior Design Projects I	3
MIME 4200	Senior Design Projects II	3
University core courses (can be satisfied with 4 additional courses)		12
4 technical elective courses		12
Econ course (Choose one)		3
ECON 1010	Introduction To Economic Issues	
ECON 1150	Principles Of Macroeconomics	
ECON 1200	Principles Of Microeconomics	
Co-op rotations (3 minimum)		3
MIME 3940	Co-Op Experience	

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 Mechanical Engineering - Mechatronics 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		

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. 75)
- BS Mechanical Engineering - Aerospace Engineering Concentration (p. 77)
- BS Mechanical Engineering - Mechatronics Concentration (p. 76)

BS in Mechanical Engineering with no concentration (general)

First Year		
First Term		**Hours**
MIME 1020	Orientation to Mechanical Engineering I	2
MIME 1110	Introduction to CAD for Mechanical Engineers	2
CHEM 1230	General Chemistry I	4
MATH 1850	Single Variable Calculus I	4
ENGL 1110	College Composition I	3
	Hours	**15**
Second Term		
MIME 1030	Orientation to Mechanical Engineering II	2
MIME 1120	Intermediate CAD for Mechanical Engineers	2
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
ENGL 2950	Technical Writing	3
	Hours	**16**
Second Year		
First Term		
MIME 1650	Materials Science & Engineering	3
CIVE 1150	Engineering Mechanics: Statics	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	**15**
Second Term		
MATH 2870	Introduction to Differential Equations and Linear Algebra for Engineers	4
MIME 2300	Engineering Dynamics	3
CIVE 1160	Engineering Mechanics: Strength Of Materials	3
ECON 1010 or ECON 1150 or ECON 1200	Introduction To Economic Issues or Principles Of Macroeconomics or Principles Of Microeconomics	3
Non-US Diversity		3
	Hours	**16**
Third Term		
MIME 3940	Co-Op Experience	1
	Hours	**1**
Third Year		
First Term		
MIME 2650	Manufacturing Processes	3
MIME 2700	Applied Measure & Instrument	4
MIME 3100	Mechanical Design 1 with Lab	4
MIME 3600	Introduction to Thermodynamics with Lab	4
	Hours	**15**
Second Term		
MIME 3940	Co-Op Experience	1
	Hours	**1**
Third Term		
MIME 3320	Mechanical Design II	3
MIME 3340	Mechanical Vibrations with Laboratory	4
MIME 3610	Fluid Mechanics with Lab	4
Social Sciences (or Humanities) Core		3
	Hours	**14**
Fourth Year		
First Term		
MIME 3940	Co-Op Experience	1
	Hours	**1**
Second Term		
MIME 3200	Senior Design Projects I	3
MIME 3620	Introduction to Heat Transfer with Lab	4
MIME 3380	Modeling and Control of Engineering Systems	3
Technical Elelctive		3
Technical Elelctive		3
	Hours	**16**
Fifth Year		
First Term		
MIME 4200	Senior Design Projects II	3
Arts/Humanities/Non-US Div Core		3
Technical Elective		3
Technical Elective		3
Humanities (or Social Sciences) Core		3
	Hours	**15**
	Total Hours	**125**

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
	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
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
	Hours	**16**
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
MIME 1650	Materials Science & Engineering	3
CIVE 1150	Engineering Mechanics: Statics	3
Arts/Humanities Core		3
	Hours	**18**
Fourth Term		
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
	Hours	**16**

Fifth Term		
MIME 3940	Co-Op Experience	1
	Hours	**1**
Sixth Term		
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
	Hours	**13**
Seventh Term		
MIME 3940	Co-Op Experience	1
	Hours	**1**
Eighth Term		
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
	Hours	**17**
Ninth Term		
MIME 3940	Co-Op Experience	1
	Hours	**1**
Tenth Term		
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 and C/C++ for Engineers	3
Technical Elective		3
	Hours	**16**
Eleventh Term		
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
	Hours	**15**
	Total Hours	**131**

- 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 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.

Code	Title	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
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
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
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
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
MET 3200	Mechanical Design I	3
MET 3100	Applied Thermodynamics	4
MET 2310	Materials Science	3
MET 2320	Materials Science Laboratory	1
MET 4200	Mechanical Design II	3
MET 4100	Applied Fluid Mechanics	4
ENGT 3050	Fundamentals Of Electricity	4
ENGT 4050	Senior Technology Capstone	3
EET 4450	Automatic Control Systems	4
Professional Development Elective		3
Diversity US		3
Art/Humanities Core/Non-US Diversity		3
Art/Humanities Core		3
Social Science Core		6
Technical Elective		3

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
	Hours	**16**
Second Term		
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
	Hours	**16**
Third Term		
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
	Hours	**18**
Fourth Term		
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
	Hours	**16**
Fifth Term		
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
	Hours	**18**
Sixth Term		
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
	Hours	**14**
Seventh Term		
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
	Hours	**17**
Eighth Term		
ENGT 4050	Senior Technology Capstone	3
EET 4450	Automatic Control Systems	4
Professional Development Elective		3
Arts/Humanities Core/Non-US Diversity		3
	Hours	**13**
	Total Hours	**128**

- 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.

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 theses 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
Total Hours		**12**

- 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 theses 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 and C/C++ for Engineers	3
MIME 4430	Automotive Control Systems	3
MIME 4440	Mechatronics	3
Total Hours		**15**

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:

- B.S. in Engineering or Engineering Technology/M.B.A. Dual Degree Program (p. 82)
- Combined Bachelor's to Master's in Engineering (p. 81)
- Minor in Business Administration (p. 82)
- Presumptive Admission Program to the University of Toledo College of Law (p. 82)

Combined Bachelor's to Master's in Engineering

OVERVIEW

The College of Engineering offers students currently enrolled in a UToledo engineering Bachelor of Science degree program an opportunity for early admission to a Master of Science in Engineering program. This combined bachelor's to master's 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 seamlessly into their graduate program.

Program requirements for combined B.S. to M.S. programs are detailed in the requirements section of the engineering BS programs.

REQUIREMENTS

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 (https://catalog.utoledo.edu/graduate/engineering/college-policies/admission/) 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.

B.S. in Engineering or Engineering Technology/M.B.A. Dual Degree Program

OVERVIEW

The B.S./M.B.A. program provides an opportunity to earn a dual degree through an integrated curriculum. Successful completion of the program leads to the awarding of two degrees: the B.S. in Engineering or Engineering Technology (awarded by the College of Engineering) and the M.B.A. (awarded by the John B. and Lillian E. Neff College of Business and Innovation). Students receive each degree independently and must complete the B.S. degree before graduating with the M.B.A. It is anticipated that both degrees can be completed in approximately five years.

ADMISSIONS

Students interested in the program should notify the Senior Associate Dean for Undergraduate Studies in the College of Engineering and the Neff College of Business and Innovation Graduate Programs Office by the end of their sophomore year (if pursuing a business minor). Students should apply for admission to the program through the College of Graduate Studies before the fall of their senior year. Admission requires senior standing and a minimum cumulative GPA of 3.0. Undergraduate equivalents to the MBA Common Body of Knowledge must be completed prior to admission.

REQUIREMENTS

To fulfill the M.B.A. degree requirements, students must complete 33 semester hours at the 6000 level. Up to an additional 9 credit hours may be required for students without a business background. Students in the dual degree program may apply undergraduate equivalent courses toward these 9 hours of Common Body of Knowledge requirements. Undergraduate business courses should be selected carefully to align with these requirements. All courses applied toward the M.B.A. must be completed with a grade of C (2.0) or higher. For questions regarding appropriate undergraduate coursework, please contact the Neff College of Business and Innovation Graduate Advisor.

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. 361)

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

Brent D. Cameron, 2000, Professor and Chair, B.S.B.E., M.S.B.E., Ph.D., Texas A&M University

Jian-yu Lu, 1997, Professor, B.S.E.E., Fudan University; M.S., Tongji University; Ph.D., Southeast University

Kelly Marbaugh, 2017, Associate Lecturer, B.S.B.E., Ph.D., The University of Toledo

Scott C. Molitor, 2000, Professor and Vice-Provost, B.S.E., University of Michigan; Ph.D., Johns Hopkins University School of Medicine

Arunan Nadarajah, 1996, Professor and Associate Dean for Research, B.Tech.Ch.E., Indian Institute of Technology; M.S.Ch.E., Ph.D., University of Florida

Scott M. Pappada, 2016, Associate Professor, B.S.B.E. Marquette University, Ph.D., The University of Toledo

Patricia A. Relue, 1993, Professor and Associate Dean of Academic Affairs, B.S.Ch.E., The University of Toledo; M.S.ChE., Ph.D., University of Michigan

Yuan Tang, 2019, Associate Professor, B.S., Shanghai Jiao Tong University, Ph.D., Florida International University

Sridhar Viamajala, 2009, Professor, B.Tech.Ch.E., Indian Institute of Technology - Kharagpur; Ph.D., Washington State University

Eda Yildirim-Ayan, 2010, Professor and Undergraduate Program Director, B.S. Ege University; M.S., Izmir Institute of Technology; Ph.D., Drexel University

Department of Chemical Engineering

Maria R. Coleman, 1998, Professor and Graduate Program Director, B.S.Ch.E., Louisiana Tech University; Ph.D., The University of Texas at Austin; PE (Arkansas)

Dong-Shik Kim, 2000, Professor, B.S.Ch.E., M.S.Ch.E., Seoul National University; Ph.D., University of Michigan; PE (Michigan)

Yakov Lapitsky, 2009, Professor and Chair, B.S. Chem., B.S.Ch.E., University of Minnesota; Ph.D., University of Delaware

Joseph Lawrence, 2008, Associate Professor, Director of the Polymer Institute, Ph.D., The University of Toledo

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Serhan Guner, 2015, Associate Professor, B.S., Dokuz Eylul University; M.S., Istanbul Technical University; Ph.D., University of Toronto; PEng.

Liangbo Hu, 2011, Associate Professor, B.E., Tongji University; M.S., Ph.D., Duke University

Dae-Wook Kang, 2019, Associate Professor, B.S.C.E., M.S. C.E.E., Seoul National University; Ph.D., University of Wisconsin-Madison

Luis A. Mata, 2015, Professor and Chair, B.S. Andrés Bello Catholic University; M.S., Ph.D. North Carolina State University; PE

Douglas K. Nims, 1991, Professor Emeritus, B.S.C.E., M.S., The Ohio State University; M.B.A., University of Michigan; Ph.D., University of California - Berkeley; PE

Alex Spivak, 2018, Associate Lecturer, BS, MS, PhD., The University of Toledo.

Sujan Subedi, 2024, Assistant Lecturer, B.S. Civil Engineering, Tribhuvan University; M.S., University of Toledo; Ph.D., University of Texas

Department of Electrical Engineering and Computer Science

Nasser Alaraje, 2019, Professor, B.S.E.E. Jordon University of Science & Technology; M.S.E.E., Ph.D., The Ohio State University

Scott Brahaney, 2022, Associate Lecturer and CSET/IT Program Director, B.S, The University of Toledo

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College of Health and Human Services

Undergraduate Catalog 2026-2027

Health Science Campus: Collier Building 4431
Main Campus: 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.

Contacts

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School of Nursing

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Degrees/Programs Offered

Department of Exercise & Rehabilitation Sciences (p. 88)

- BS in Respiratory Care (p. 108)
- BS in Speech-Language Pathology (p. 111)

Department of Human Services

- BS in Recreational Therapy (p. 118)
- BSW in Social Work (p. 120)
- Certificate in Chemical Dependency Counseling (p. 121)
- Minor in Counseling (p. 121)

Department of Population Health (p. 122)

- BS in Healthcare Administration (p. 128)
- BA in Health Sciences (p. 94)
- BS in Health Sciences (p. 100)
- BS in Public Health (p. 144)
- Minor in Health Sciences (p. 147)
- Minor in Public Health (p. 147)

School of Nursing

- BSN Pre-Licensure Track (p. 150)
- RN-BSN Track (p. 152)

Admission Policies

Selective/Limited Admission

The following programs require an additional application for admission to their professional programs:

- Nursing
- Public health

- Recreational therapy
- Respiratory care
- Social work

Requirements for Direct-From-High-School Students

For undecided students or students majoring in Health Sciences BA, Recreational Therapy or Social Work

- 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 majoring in Health Sciences BS, Healthcare Administration, Public Health, Respiratory Care or Speech-Language Pathology

- 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

For students majoring in Prelicensure Nursing

- **Direct Guaranteed Admission Pathway Requirements (only for *First-time* direct from high school or *First-time* adult students):**
  - Minimum GPA if applying without test scores: 3.8 *OR*
  - Minimum GPA and test scores if applying with test scores: 3.6 or higher and a 23 ACT or 1130 SAT score *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 3.
- **Traditional Pathway Requirements (for *First-time* direct from high school or *First-time* adult students):**
  - Minimum GPA if applying without test scores: 3.0
  - Minimum GPA and test scores if applying with test scores: 2.75 and a 19 ACT or 990 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.

Transfer Students/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. Transferability of previously completed upper division courses in the major is determined by the College after the student submits official transcripts from all colleges and universities attended. In most cases, the student is expected to provide the program director with syllabi and course descriptions. Evaluation must be completed before matriculation into the upper division. All program requirements, including University core, must be fulfilled as specified in the catalog for the year in which the student enters the College.

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 Academic Advising 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.

Prelicensure Nursing Majors: minimum 12 hours of graded earned college-level credit and 2.75 cumulative higher education GPA to transfer; minimum cumulative higher education GPA of 3.0 to be eligible to apply for the upper division

Healthcare Administration, Health Sciences BS, Public Health, Respiratory Care and Speech-Language Pathology Majors: minimum 12 hours of graded earned college-level credit and 2.7 cumulative GPA to transfer

Health Sciences BA, Recreational Therapy and Social Work Majors: 2.2 cumulative GPA if 12-29 hours of graded earned college-level credit; 2.4 cumulative GPA if 30-59 hours; and 2.5 cumulative GPA if 60+ hours

RN to BSN Majors: 2.0 cumulative GPA, graduate of an associate or a diploma nursing program with an active, unrestricted, unencumbered RN license

Readmission

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 and program requirements at the time of readmission. In clinical programs such as nursing and respiratory care, an absence of one academic year for any reason may require auditing of previous upper division courses.

Students accepted into the upper division, who then decline, drop, or withdraw, must reapply for admission to the upper division. Students dismissed from programs are not eligible for readmission to the upper division.

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

The College of Health and Human Services adheres to all UToledo policies and procedures. Please refer to The University of Toledo Policy website (https://www.utoledo.edu/policies/) 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. The School of Nursing may have stricter policies than the university that are based on accreditation standards and Ohio Board of Nursing requirements.

Academic Dishonesty

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 Dishonesty.

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.

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.

Student Services

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. Students are advised by academic advisors through the Office of Academic Advising. See the Office of Academic Advising web page for more information. (https://www.utoledo.edu/offices/advising/).

Advisors:

- 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.

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.

The College of Health and Human Services reserves the right to change any requirement, regulation, or provision. Changes will be publicized and take effect on the date they are approved. In the School of Nursing,

only students admitted to the upper division are allowed to take NURS courses.

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
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 respiratory care and speech-language pathology.

Accreditation

The Respiratory Care program is accredited by the Commission on Accreditation for Respiratory Care (CoARC).

Degrees Offered

- BS in Respiratory Care (p. 108)
- BS in Speech-Language Pathology (p. 111)

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, 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, 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.
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.
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, Summer, 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, 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.
Term Offered: Spring, 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: (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)
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: (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)
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) or (EXSC 2560 with a minimum grade of C and EXSC 2570 with a minimum grade of C)
Corequisites: EXSC 4550
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 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) Seminar
[0 credit hours]
This class helps students learn important life skills for being adults. Students will learn about themselves, how to handle their feelings, how to get along with others, and how to solve problems. These skills help students live on their own and be successful at work and in their community. Each week, students will learn new things and practice using these skills in real situations.
Term Offered: Spring, Summer, Fall

OCCT 2550 Purposeful Living: The 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
[6 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
[9 credit hours]
Didactic, laboratory, and introductory chinical 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 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
[9 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
[1 credit hour]
Theory and practice of selected cardiopulmonary diagnostic procedures including measures of pulmonary volumes, flows, gas distribution, and gas diffusion. Capnography, exercise tasting, 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

RCBS 3300 Advanced Cardiac Life Support
[2 credit hours]
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

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
[3 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: 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
[4 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
[2 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

RCBS 4700 Research Analysis In Respiratory Care
[2 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: Fall

RCBS 4800 Issues In Professional Practice
[2 credit hours]
A capstone course designed to prepare the senior student for professional practice. Students will explore credentialing, licensure, and current trends shaping the field of respiratory care. Emphasis is placed on emerging issues in professional practice and patient care.
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

RCBS 4810 Preparation For Professional Practice
[2 credit hours]
This course is designed to prepare students for the National Board for Respiratory Care (NBRC) credentialing examinations. Graduates of the respiratory care program will be required to successfully complete the NBRC's examinations in order to practice as a Respiratory Therapist.
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, 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 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

SLP 3020 Anatomy And Physiology Of Communication Mechanisms
[1-4 credit hours]
The study of the anatomy and physiology of the mechanisms used for communication including oral-pharynageal-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 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: 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, Fall

SLP 4900 Seminar In Speech-Language Pathology
[2 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 speech-language pathology will be the focus.
Prerequisites: SLP 3800 (may be taken concurrently) with a minimum grade of B-
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

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-Graduate Entry Nursing concentration best for students that already have some undergraduate college credits and are interested in attending masters-level Registered Nursing (RN) 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 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.

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- Health Sciences - Pre-Occupational Therapy Concentration, BA (p. 95)
- Health Sciences - Social Determinants of Health Concentration, BA (p. 95)

Health Sciences - Pre-Graduate Entry Nursing Concentration, BA

Code	Title	Hours
UToledo Core Curriculum (44 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 2600	Introduction To Statistics	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts		3
PSY 1010	Principles Of Psychology	3
SOC 1010	Introduction To Sociology	3
BIOL 1120	Survey Of Biology	3
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
CLT 2000	The American Constitutional Tradition	3
or PSC 1210	American National Government and Civics	
Core Electives		6
U.S. Diversity		3
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (38 hours)		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
HEAL 1800	Medical Terminology	3
HEAL 3600	Prevention And Control Of Disease	3
HEAL 4100	Health Behavior	3
HEAL 4900	Health Education Seminar	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
HHS 4800	Health Sciences Capstone I	3
HHS 4810	Health Sciences Capstone II	3
HIM 2300	Healthcare Resources, Payers	3
Supplemental Major Course (choose 1)		
PHIL 3370	Medical Ethics Recommended	3
or HIM 4230	Compliance and Ethical Issues	
or LGL 4230	Health Care And The Law	

Code	Title	Hours
Pre-Graduate Entry Nursing Concentration Required Courses (16 hours)		
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 2400	General Safety	3
or HEAL 2500	Personal Health	
or HEAL 2600	Mental Health	

PSY 2200	Abnormal Psychology	3
PSY 2510	Lifespan Developmental Psychology	3

Code	Title	Hours
General Electives (22 hours) EXSC or HEAL recommended		**22**

Health Sciences - Pre-Occupational Therapy Concentration, BA Requirements

Code	Title	Hours
UToledo Core Curriculum (44 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 2600	Introduction To Statistics	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
COCA 2000	Mindful Creativity Recommended	3
PSY 1010	Principles Of Psychology	3
SOC 1010	Introduction To Sociology	3
BIOL 1120	Survey Of Biology	3
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
CLT 2000	The American Constitutional Tradition	3
or PSC 1210	American National Government and Civics	
Core Electives		6
DST 2020	Introduction to Disability Studies Recommended	3
ANTH 2800	Cultural Anthropology Recommended	3

Code	Title	Hours
Required Health Sciences Major Courses (38 hours)		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
HEAL 1800	Medical Terminology	3
HEAL 3600	Prevention And Control Of Disease	3
HEAL 4100	Health Behavior	3
HEAL 4900	Health Education Seminar	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
HHS 4800	Health Sciences Capstone I	3
HHS 4810	Health Sciences Capstone II	3
HIM 2300	Healthcare Resources, Payers	3
Choose 1 Supplemental Major course (3 credit hours)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
Pre-Occupational Therapy Concentration Requirements (19 hours)		
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 2400	General Safety	3
or HEAL 2500	Personal Health	
or HEAL 2600	Mental Health	
OCCT 2550	Purposeful Living: The role of occupational therapy	3
PSY 2200	Abnormal Psychology	3
PSY 2510	Lifespan Developmental Psychology	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3

Code	Title	Hours
General Electives (19 hours) EXSC or HEAL recommended		**19**

Health Sciences - Social Determinants of Health Concentration, BA Requirements

Code	Title	Hours
UToledo Core Curriculum (44 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 2600	Introduction To Statistics	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts		3
PSY 1010	Principles Of Psychology	3
SOC 1010	Introduction To Sociology	3
BIOL 1120	Survey Of Biology	3
EXSC 1560	Fundamentals of Anatomy and Physiology	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
CLT 2000	The American Constitutional Tradition	3
or PSC 1210	American National Government and Civics	
Core Electives		6
U.S. Diversity		3
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (38 hours)		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
HEAL 1800	Medical Terminology	3
HEAL 3600	Prevention And Control Of Disease	3
HEAL 4100	Health Behavior	3
HEAL 4900	Health Education Seminar	3
HHS 1020	Introduction to Health Sciences II	2

HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
HHS 4800	Health Sciences Capstone I	3
HHS 4810	Health Sciences Capstone II	3
HIM 2300	Healthcare Resources, Payers	3
Supplemental Major Course (choose 1)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
Social Determinants of Health Concentration Courses (38 hours)		
Required Courses (12 hours)		
COMM 3760	Health Communication	3
HEAL 2100	Living Well	3
HEAL 2500	Personal Health	3
HEAL 2700	Introduction to Public Health	3
Supporting Courses (select an additional 26 hours)		*26*
ANTH 3330	Food, Health, Society	
ANTH 4760	Medical Anthropology	
COMM 2500	Introduction to Social Media	
COMM 3500	Social Media Strategies	
COMM 2600	Public Presentations	
COMM 2820	Group Communication	
COMM 2830	Organizational Communication	
COMM 4830	Gender, Culture and 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	
DATA 4500	Data Science II	
DATA 2500	Data Science I	
DST 2020	Introduction to Disability Studies	
EEES 1050	Geological Hazards And The Environment	
EEES 1170	Microbes And Society	
EDP 4220	Adolescent Behavior And Development	
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	
HEAL 2400	General Safety	
HEAL 2600	Mental Health	
HEAL 2800	Principles Of Nutrition	
HEAL 3500	Environmental Health	
HEAL 3800	Death And Dying	
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 4330	Leading Organizational Change and Development	
MGMT 4780	Leading and Managing People	
OCCT 2550	Purposeful Living: The 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 Recreational Therapy	
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 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	

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Health Sciences - Pre-Graduate Entry Nursing Concentration, BA

First Term		Hours
ENGL 1110	College Composition I	3
HEAL 1800	Medical Terminology	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
MATH 2600	Introduction To Statistics	3
PSY 1010	Principles Of Psychology	3
Core Elective		3
	Hours	**16**
Second Term		
BIOL 1120	Survey Of Biology	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 1020	Introduction to Health Sciences II	2
SOC 1010	Introduction To Sociology	3
General Elective	EXSC or HEAL recommended	3
	Hours	**14**
Third Term		
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
HEAL 2400 or HEAL 2500 or HEAL 2600	General Safety or Personal Health or Mental Health	3
Core Elective		3
General Elective	See list of suggested electives	3
	Hours	**16**
Fourth Term		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
U.S. Diversity		3
Humanities/Fine Arts		3
General Elective	EXSC or HEAL recommended	3
	Hours	**16**
Fifth Term		
HEAL 4100	Health Behavior	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HIM 2300	Healthcare Resources, Payers	3
PSY 2200	Abnormal Psychology	3
Non-U.S. Diversity		3
	Hours	**15**
Sixth Term		
EXSC 2590	Microbiology and Infectious Diseases	3
HEAL 3600	Prevention And Control Of Disease	3
HHS 4100	Foundations of Healthcare Delivery	3
PSY 2510	Lifespan Developmental Psychology	3
CLT 2000 or PSC 1210	The American Constitutional Tradition or American National Government and Civics	3
	Hours	**15**
Seventh Term		
HHS 4800	Health Sciences Capstone I	3
PHIL 3370	Medical Ethics	3
COMM 1010 or COMM 2840	Communication Principles And Practices recommended or Interpersonal Communication	3
General Elective	EXSC or HEAL recommended	3
General Elective		3
	Hours	**15**
Eighth Term		
HEAL 4900	Health Education Seminar	3
HHS 4810	Health Sciences Capstone II	3
General Elective	EXSC or HEAL recommended	3
General Elective		4
	Hours	**13**
	Total Hours	**120**

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Health Sciences - Pre-Occupational Therapy Concentration, BA Plan of Study

First Term		Hours
ENGL 1110	College Composition I	3
HEAL 1800	Medical Terminology	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
MATH 2600	Introduction To Statistics	3
PSY 1010	Principles Of Psychology	3
ANTH 2800	Cultural Anthropology Recommended Non-U.S. Diversity	3
	Hours	**16**
Second Term		
BIOL 1120	Survey Of Biology	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 1020	Introduction to Health Sciences II	2
SOC 1010	Introduction To Sociology	3
General Elective	CMPT 1100 recommended	3
	Hours	**14**
Third Term		
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

OCCT 2550	Purposeful Living: The role of occupational therapy	3
COMM 1010 or COMM 2840	Communication Principles And Practices Recommended or Interpersonal Communication	3
General Elective	ART 1040 recommended	3
	Hours	**16**
Fourth Term		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 2400 or HEAL 2500 or HEAL 2600	General Safety or Personal Health or Mental Health	3
DST 2020	Introduction to Disability Studies Recommended U.S. Diversity	3
COCA 2000	Mindful Creativity Recommended Humanities/ Fine Arts	3
	Hours	**16**
Fifth Term		
HEAL 4100	Health Behavior	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HIM 2300	Healthcare Resources, Payers	3
PSY 2200	Abnormal Psychology	3
CLT 2000 or PSC 1210	The American Constitutional Tradition or American National Government and Civics	3
	Hours	**15**
Sixth Term		
HEAL 3600	Prevention And Control Of Disease	3
HHS 4100	Foundations of Healthcare Delivery	3
PSY 2510	Lifespan Developmental Psychology	3
Core Elective	PHYS 1300 recommended	3
General Elective		3
	Hours	**15**
Seventh Term		
HHS 4800	Health Sciences Capstone I	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
Supplemental Major Course (Select 1- HIM 4230, LGL 4230, PHIL 3370)		3
Core Elective		3
General Elective	EXSC or HEAL recommended	3
	Hours	**15**
Eighth Term		
HEAL 4900	Health Education Seminar	3
HHS 4810	Health Sciences Capstone II	3
General Elective		3
General Elective		4
	Hours	**13**
	Total Hours	**120**

Health Sciences - Social Determinants of Health Concentration, BA Plan of Study

First Term		**Hours**
ENGL 1110	College Composition I	3
EXSC 1560	Fundamentals of Anatomy and Physiology	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
HHS 1010	Introduction to Health Sciences I with Orientation	1
PSY 1010	Principles Of Psychology	3
U.S. Diversity		3
	Hours	**14**
Second Term		
BIOL 1120	Survey Of Biology	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 1020	Introduction to Health Sciences II	2
SOC 1010	Introduction To Sociology	3
Supporting Course	See list of suggested courses	3
Supporting Course	See list of suggested courses	3
	Hours	**17**
Third Term		
HEAL 2700	Introduction to Public Health	3
HHS 3100	Introduction to Social Determinants of Health	3
HIM 2300	Healthcare Resources, Payers	3
Supporting Course	See list of suggested courses	3
Supporting Course	See list of suggested courses	3
	Hours	**15**
Fourth Term		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
HEAL 1800	Medical Terminology	3
CLT 2000 or PSC 1210	The American Constitutional Tradition or American National Government and Civics	3
Core Elective		3
Humanities/Fine Arts		3
	Hours	**15**
Fifth Term		
HEAL 3600	Prevention And Control Of Disease	3
HEAL 4100	Health Behavior	3
COMM 1010 or COMM 2840	recommended	3
Non-U.S. Diversity		3
Supporting Course	See list of suggested courses	3
	Hours	**15**

Sixth Term		
HEAL 2100	Living Well	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
Core Elective		3
Supporting Course	See list of suggested courses	3
Supporting Course	See list of suggested courses	2
	Hours	**14**
Seventh Term		
COMM 3760	Health Communication	3
HEAL 2500	Personal Health	3
HHS 4800	Health Sciences Capstone I	3
MATH 2600	Introduction To Statistics	3
Supporting Course		3
	Hours	**15**
Eighth Term		
HEAL 4900	Health Education Seminar	3
HHS 4100	Foundations of Healthcare Delivery	3
HHS 4810	Health Sciences Capstone II	3
Supplemental Major Course (Choose 1- HIM 4230, LGL 4230, PHIL 3370)		3
Supporting Course		3
	Hours	**15**
	Total Hours	**120**

- Health Sciences - Pre-Graduate Entry Nursing Concentration, BA (p. 94)
- Health Sciences - Pre-Occupational Therapy Concentration, BA (p. 99)
- Health Sciences - Social Determinants of Health Concentration, BA (p. 99)

Health Sciences - Pre-Graduate Entry Nursing Concentration, BA

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

Health Sciences - Pre-Occupational Therapy Concentration, BA Learning Outcomes

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

Health Sciences - Social Determinants of Health Concentration, BA Learning Outcomes

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication

- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

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 - General Concentration, BS (p. 100)
- Health Sciences - Human Performance & Fitness Promotion Concentration, BS (p. 101)
- Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS (p. 101)
- Health Sciences - Pre-Medical Professions Concentration, BS (p. 102)
- Health Sciences - Pre-Physician Assistant Concentration, BS (p. 103)

Health Sciences - General Concentration, BS

Code	Title	Hours
UToledo Core Curriculum (46-47 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select one of the options		5-6
MATH 1340	College Algebra And Trigonometry	
MATH 1330 & MATH 1320	Trigonometry and College Algebra	
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts and U.S. Diversity		3
PSY 1010	Principles Of Psychology	3
PSC 1210	American National Government and Civics	3
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 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (33 hours) C or better		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology	3
HEAL 4700	Nutritional Science	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
Supplemental Major Course (choose 1)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
General Elective Courses (40-41 hours, 12 must be at the 3000/4000 level) EXSC and HEAL courses recommended		40-41

Health Sciences - Human Performance & Fitness Promotion Concentration, BS Requirements

Code	Title	Hours
UToledo Core Curriculum (46-47 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1340	College Algebra And Trigonometry	5,6
or MATH 1320	College Algebra	
or MATH 1330	Trigonometry	
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts and U.S. Diversity		3
PSY 1010	Principles Of Psychology	3
PSC 1210	American National Government and Civics	3
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 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (33 hours) [C or better]		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology	3
HEAL 4700	Nutritional Science	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
Supplemental Major Course (choose 1)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
Human Performance Fitness Promotion Concentration (35 hours) [C or better]		
EXSC 3520	Applied Exercise Physiology	3
EXSC 3530	Applied Exercise Physiology Laboratory	1
EXSC 3680	Sport and Exercise Pharmacology	3
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
EXSC 4850	Clinical Exercise Testing	3
EXSC 4860	Clinical Exercise Testing Lab	1
EXSC 4140	Fitness Internship I	4
EXSC 4210	Exercise Facility Management	3
EXSC 4840	Fitness Internship II	4
Supplemental Concentration Course (choose 1)		
EXSC 4540	Applied Biomechanics	3
or EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	

Code	Title	Hours
General Electives	[HEAL courses recommended]	**6**

Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS Requirements

Code	Title	Hours
UToledo Core Curriculum (46-47 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select one of the following math options		5,6
MATH 1340	College Algebra And Trigonometry	
MATH 1320 & MATH 1330	College Algebra and Trigonometry	
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts and U.S. Diversity		3
PSY 1010	Principles Of Psychology	3
PSC 1210	American National Government and Civics	3
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 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
PHYS 2070	General Physics I	4

PHYS 2075	General Physics I - Lab	1
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (33 hours) [C or better]		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology	3
HEAL 4700	Nutritional Science	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
Supplemental Major Course (choose 1)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
Required Pre-Athletic Training and Pre-Physical Therapy Concentration Courses (28 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
EXSC 3520	Applied Exercise Physiology	3
EXSC 3530	Applied Exercise Physiology Laboratory	1
EXSC 4540	Applied Biomechanics	3
EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	3
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
PSY 2200	Abnormal Psychology	3
or PSY 2510	Lifespan Developmental Psychology	
or PSY 2700	Social Psychology	

Code	Title	Hours
General Electives (12-13 hours; at least three hours should be upper level) [EXSC and HEAL courses recommended]		12-13

Health Sciences - Pre-Medical Professions Concentration, BS Requirements

Code	Title	Hours
UToledo Core Curriculum (46-47 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1340	College Algebra And Trigonometry	5,6
or MATH 1320	College Algebra	
or MATH 1330	Trigonometry	
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices [Recommended]	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts and U.S. Diversity		3
PSY 1010	Principles Of Psychology	3
PSC 1210	American National Government and Civics	3
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 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (33 hours) [C or better]		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology	3
HEAL 4700	Nutritional Science	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
Supplemental Major Course (choose 1)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
Pre-Medical Professions Concentration (29-30 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
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	4
PHYS 2085	General Physics II - Lab	1
CHEM 3510	Biochemistry I	3
Supplemental Concentration Course (choose 1)		
EXSC 3200	Advanced Human Anatomy	3
EXSC 3520/3530	Applied Exercise Physiology	3
EXSC 4540	Applied Biomechanics	3
EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	3

Code	Title	Hours
General Electives (12 hours, 6 must be 3000/4000 level) BIOL, EXSC, HEAL, PSY 2510 recommended		**12**

Health Sciences - Pre-Physician Assistant Concentration, BS Requirements

Code	Title	Hours
UToledo Core Curriculum (46-47 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1340	College Algebra And Trigonometry	5,6
or MATH 1320	College Algebra	
or MATH 1330	Trigonometry	
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts and U.S. Diversity		3
PSY 1010	Principles Of Psychology	3
PSC 1210	American National Government and Civics	3
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 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (33 hours) C or better		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology	3
HEAL 4700	Nutritional Science	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
Supplemental Major Course (choose 1)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
Pre-Physician Assistant Concentration (30-31 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 3030	Cell Biology	3
BIOL 4030	Microbiology	3
BIOL 4040	Microbiology Laboratory	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
PSY 2510	Lifespan Developmental Psychology	3
Supplemental Concentration Course (choose 1)		
EXSC 3200	Advanced Human Anatomy	3
EXSC 3520/3530	Applied Exercise Physiology	3
EXSC 4540	Applied Biomechanics	3
EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	3

Code	Title	Hours
General Electives (11 hours; EXSC or HEAL courses recommended)		11

- Health Sciences - General Concentration, BS (p. 100)
- Health Sciences - Human Performance & Fitness Promotion Concentration, BS (p. 104)
- Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS (p. 105)
- Health Sciences - Pre-Medical Professions Concentration, BS (p. 106)

- Health Sciences - Pre-Physician Assistant Concentration, BS (p. 107)

Health Sciences - General Concentration, BS

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
	Hours	**14**
Second Term		
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 1020	Introduction to Health Sciences II	2
PSY 1010	Principles Of Psychology	3
COMM 1010 or COMM 2840	recommended	3
General Elective	EXSC or HEAL recommended	3
General Elective	EXSC or HEAL recommended	3
	Hours	**17**
Third Term		
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
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
PSC 1210	American National Government and Civics	3
	Hours	**15**
Fourth Term		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 1800	Medical Terminology	3
General Elective		3
General Elective	EXSC or HEAL recommended	3
	Hours	**16**
Fifth Term		
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-U.S. Diversity		3
General Elective	Upper-level EXSC or HEAL recommended	3
General Elective		3
	Hours	**14**
Sixth Term		
EXSC 2580	Human Pathophysiology For Health Care	3
HHS 4100	Foundations of Healthcare Delivery	3
Humanities/Fine Arts and U.S. Diversity		3
General Elective	Upper-level EXSC or HEAL recommended	3
General Elective	EXSC or HEAL recommended	3
	Hours	**15**
Seventh Term		
HEAL 4700	Nutritional Science	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
MATH 2600	Introduction To Statistics	3
General Elective	Upper-level EXSC or HEAL recommended	3
General Elective		3
	Hours	**15**
Eighth Term		
Supplemental Major Course (Choose 1- HIM 4230, LGL 4230, PHIL 3370)		3
General Elective	Upper-level EXSC or HEAL recommended	3
General Elective	EXSC or HEAL recommended	3
General Elective		3
General Elective		2
	Hours	**14**
	Total Hours	**120**

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
	Hours	**14**
Second Term		
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
HEAL 1800	Medical Terminology	3
HHS 1020	Introduction to Health Sciences II	2
PSY 1010	Principles Of Psychology	3
	Hours	**15**
Third Term		
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

Non-U.S. Diversity		3
	Hours	**15**
Fourth Term		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 3520	Applied Exercise Physiology	3
EXSC 3530	Applied Exercise Physiology Laboratory	1
PSC 1210	American National Government and Civics	3
COMM 1010 or COMM 2840 recommended		3
	Hours	**13**
Fifth Term		
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
	Hours	**15**
Sixth Term		
EXSC 3680	Sport and Exercise Pharmacology	3
EXSC 4850	Clinical Exercise Testing	3
EXSC 4860	Clinical Exercise Testing Lab	1
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
General Elective HEAL course recommended		3
	Hours	**16**
Seventh Term		
EXSC 2580	Human Pathophysiology For Health Care	3
EXSC 4140	Fitness Internship I	4
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
Supplemental Concentration Course (Choose 1- EXSC 4540, EXSC 4640)		3
General Elective HEAL course recommended		3
	Hours	**16**
Eighth Term		
EXSC 4210	Exercise Facility Management	3
EXSC 4840	Fitness Internship II	4
HEAL 4700	Nutritional Science	3
Supplemental Major Course (Choose 1- HIM 4230, LGL 4230, PHIL 3370)		3
Humanities/Fine Arts and U.S. Diversity		3
	Hours	**16**
	Total Hours	**120**

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
ENGL 1110	College Composition I	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
MATH 1340	College Algebra And Trigonometry	5
	Hours	**14**
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
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 1020	Introduction to Health Sciences II	2
PSY 1010	Principles Of Psychology	3
COMM 1010 or COMM 2840 recommended		3
	Hours	**16**
Third Term		
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
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
PSC 1210	American National Government and Civics	3
	Hours	**15**
Fourth Term		
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 1800	Medical Terminology	3
	Hours	**15**
Fifth Term		
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 or PSY 2510 or PSY 2700	Abnormal Psychology or Lifespan Developmental Psychology or Social Psychology	3
Humanities/Fine Arts and U.S. Diversity		3
	Hours	**15**

Sixth Term		
EXSC 2580	Human Pathophysiology For Health Care	3
HHS 4100	Foundations of Healthcare Delivery	3
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
Non-U.S. Diversity		3
General Elective	EXSC or HEAL recommended	3
	Hours	**17**
Seventh Term		
EXSC 4540	Applied Biomechanics	3
HEAL 4700	Nutritional Science	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
MATH 2600	Introduction To Statistics	3
General Elective	Upper-level EXSC or HEAL recommended	3
	Hours	**15**
Eighth Term		
EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	3
Supplemental Major Course (Choose 1- HIM 4230, LGL 4230, PHIL 3370)		3
General Elective		3
General Elective		4
	Hours	**13**
	Total Hours	**120**

Health Sciences - Pre-Medical Professions 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
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
	Hours	**16**
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
ENGL 1110	College Composition I	3
HHS 1020	Introduction to Health Sciences II	2
	Hours	**15**
Third Term		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
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
HHS 3100	Introduction to Social Determinants of Health	3
	Hours	**14**
Fourth Term		
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
PSY 1010	Principles Of Psychology	3
	Hours	**14**
Fifth Term		
CHEM 3510	Biochemistry I	3
HEAL 1800	Medical Terminology	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
PSC 1210	American National Government and Civics	3
Non-U.S. Diversity		3
	Hours	**17**
Sixth Term		
EXSC 2580	Human Pathophysiology For Health Care	3
HHS 4100	Foundations of Healthcare Delivery	3
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
COMM 1010 or COMM 2840	recommended	3
General Elective	BIOL, EXSC, HEAL, PSY 2510 recommended	3
	Hours	**17**
Seventh Term		
HEAL 4700	Nutritional Science	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
MATH 2600	Introduction To Statistics	3
Supplemental Concentration Course- EXSC 3200, EXSC 3520/3530, EXSC 4540, EXSC 4640)		3-4
	Hours	**12-13**
Eighth Term		
Supplemental Major Course (Choose 1- HIM 4230, LGL 4230, PHIL 3370)		3
Humanities/Fine Arts and U.S. Diversity		3
General Elective	Upper level required	3
General Elective	Upper level required	3

General Elective	BIOL, EXSC, HEAL, PSY 2510 recommended	3
	Hours	**15**
	Total Hours	**120-121**

Health Sciences - Pre-Physician Assistant 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
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
	Hours	**16**
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
ENGL 1110	College Composition I	3
HHS 1020	Introduction to Health Sciences II	2
	Hours	**15**
Third Term		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
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
HHS 3100	Introduction to Social Determinants of Health	3
	Hours	**14**
Fourth Term		
BIOL 3010	Molecular Genetics	3
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 1800	Medical Terminology	3
PSY 1010	Principles Of Psychology	3
	Hours	**16**
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
PSC 1210	American National Government and Civics	3
	Hours	**14**
Sixth Term		
BIOL 4030	Microbiology	3
BIOL 4040	Microbiology Laboratory	1
EXSC 2580	Human Pathophysiology For Health Care	3
HHS 4100	Foundations of Healthcare Delivery	3
COMM 1010 or COMM 2840	recommended	3
General Elective	EXSC or HEAL recommended	3
	Hours	**16**
Seventh Term		
HEAL 4700	Nutritional Science	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
MATH 2600	Introduction To Statistics	3
Supplemental Concentration Course (Choose 1- EXSC 3200, EXSC 3520/3530, EXSC 4540, EXSC 4640)		3-4
General Elective	EXSC or HEAL recommended	3
	Hours	**15-16**
Eighth Term		
Supplemental Major Course (Choose 1- HIM 4230, LGL 4230, PHIL 3370)		3
Humanities/Fine Arts and U.S. Diversity		3
Non-U.S. Diversity		3
General Elective		5
	Hours	**14**
	Total Hours	**120-121**

- Health Sciences - Human Performance & Fitness Promotion Concentration, BS (p. 107)
- Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS (p. 108)
- Health Sciences - Pre-Medical Professions Concentration, BS (p. 108)
- Health Sciences - Pre-Physician Assistant Concentration, BS (p. 108)

Health Sciences - Human Performance & Fitness Promotion Concentration, BS Learning Outcomes

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers

- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS Learning Outcomes

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

Health Sciences - Pre-Medical Professions Concentration, BS Learning Outcomes

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

Health Sciences - Pre-Physician Assistant Concentration, BS Learning Outcomes

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

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. 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
Total Hours		**27**

- 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

- The Respiratory Care Program has a selective admissions process based on academic performance, interpersonal skills, written and verbal communication skills, and professionalism. Admission to the Professional Division is assessed on the following factors: the overall GPA and the GPA in math and science prerequisite classes; a writing sample; a presentation; and/or an interview.

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
or HIM 4230	Compliance and Ethical Issues	
RCBS 3010	Respiratory Care Fundamentals	4

RCBS 3020	Respiratory Care Practice I	6
RCBS 3110	Respiratory Care Therapeutics I	4
RCBS 3120	Respiratory Care Practice II	9
RCBS 3130	Cardiopulmonary Diagnostics I	4
RCBS 3210	Respiratory Care Therapeutics II	4
RCBS 3220	Respiratory Care Practice III	9
RCBS 3230	Cardiopulmonary Diagnostics II	1
RCBS 4140	Integrated Clinical Practice I	4
RCBS 4150	Neonatal/Pediatric Respiratory Care	3
RCBS 4160	Clinical Assessment	3
RCBS 4700	Research Analysis In Respiratory Care	2
RCBS 3300	Advanced Cardiac Life Support	2
RCBS 4240	Integrated Clinical Practice II	4
RCBS 4510	Respiratory Care in Alternate Sites	2
RCBS 4800	Issues In Professional Practice	2
RCBS 4810	Preparation For Professional Practice	2

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 [1]	4
ENGL 1110	College Composition I [1]	3
HEAL 1800	Medical Terminology [1]	3
HHS 1000	Health And Human Services/College Orientation	1
MATH 1320	College Algebra [1]	3
	Hours	**14**
Second Term		
ENGL 1130	College Composition II: Academic Disciplines And Discourse [1]	3
EXSC 2560	Anatomy and Physiology I [1]	3
EXSC 2460	Human Anatomy And Physiology I Lab [1]	1
PHIL 1020	Critical Thinking	3
PSY 1010	Principles Of Psychology	3
Arts/Humanities Core/Diversity of US		3
	Hours	**16**
Third Term		
EXSC 2570	Human Anatomy and Physiol II [1]	3
EXSC 2470	Human Anatomy And Physiology II Lab [1]	1
HEAL 3800	Death And Dying	3
MATH 2600	Introduction To Statistics	3
Non- US Diversity		3
	Hours	**13**
Fourth Term		
EXSC 2590	Microbiology and Infectious Diseases [1]	3
HEAL 2800	Principles Of Nutrition	3
PHIL 3370	Medical Ethics	3
Social Sciences Core		3
	Hours	**12**
Fifth Term		
Summer		
RCBS 3010	Respiratory Care Fundamentals [1]	4
RCBS 3020	Respiratory Care Practice I [1]	6
	Hours	**10**
Sixth Term		
RCBS 3110	Respiratory Care Therapeutics I [1]	4
RCBS 3120	Respiratory Care Practice II [1]	9
RCBS 3130	Cardiopulmonary Diagnostics I [1]	4
	Hours	**17**
Seventh Term		
RCBS 3210	Respiratory Care Therapeutics II [1]	4
RCBS 3220	Respiratory Care Practice III [1]	9
RCBS 3230	Cardiopulmonary Diagnostics II	1
	Hours	**14**
Eighth Term		
RCBS 4140	Integrated Clinical Practice I [1]	4
RCBS 4150	Neonatal/Pediatric Respiratory Care [1]	3
RCBS 4160	Clinical Assessment [1]	3
RCBS 4700	Research Analysis In Respiratory Care [1]	2
	Hours	**12**
Ninth Term		
RCBS 3300	Advanced Cardiac Life Support [1]	2
RCBS 4240	Integrated Clinical Practice II [1]	4
RCBS 4510	Respiratory Care in Alternate Sites [1]	2
RCBS 4800	Issues In Professional Practice [1]	2
RCBS 4810	Preparation For Professional Practice [1]	2
	Hours	**12**
	Total Hours	**120**

[1] 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 aterial 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.

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 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 clinical portions of the speech-language pathology curriculum during their senior year, is required to complete various immunizations:

- MMR Vaccine
- Hep B Vaccination Series
- 2-step Initial TB test
- Seasonal flu vaccine (if in spring semester clinic)

Students are prohibited to engage in clinical 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. 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
	Hours	**16**
Second Term		
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
	Hours	**14**
Third Term		
SLP 3020	Anatomy And Physiology Of Communication Mechanisms	4
SLP 3030	Normal Language Acquisition	4
Diversity of US		3
Elective		3
	Hours	**14**
Fourth Term		
SLP 3010	Clinical Phonetics	4
SLP 3300	Language Disorders	4
Arts/Humanities Core		3
Core Elective		3
	Hours	**14**
Fifth Term		
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		
COUN 4080	Essentials Of Helping Relationships	
Electives		6
	Hours	**16**
Sixth Term		
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		
COUN 4080	Essentials Of Helping Relationships	
	Hours	**15**
Seventh Term		
SLP 3400	Clinical Audiology	3
Core Elective		3
Elective (2000-level or higher)		9
	Hours	**15**
Eighth Term		
SLP 4000	Beginning Clinical Practicum	2
Core Elective		3
Elective		11
	Hours	**16**
	Total Hours	**120**

- 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
Holly Eichner, Recreational Therapy Program Director
Meredith Rinna, Social Work Program Director

The Department of Human Services offers undergraduate degree programs in recreational therapy and social work. A minor is available in counseling. An undergraduate certificate is offered in chemical dependency counseling.

Accreditation

- The Social Work program is accredited by the Council on Social Work Education (CSWE).

Degrees Offered

- BS in Recreational Therapy (p. 118)
- BSW in Social Work (p. 120)
- Certificate in Chemical Dependency Counseling (p. 121)
- Minor in Counseling (p. 121)

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: Spring, Fall

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, Fall

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: Spring, 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, Fall

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: Spring, 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, Fall

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 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 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 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 Recreational Therapy
[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: 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

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 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 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 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.
Term Offered: Summer

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.
Term Offered: Summer

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 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.
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
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 or PSC 1210 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

BS in Recreational Therapy

The University of Toledo offers a Bachelor of Science degree in Recreational Therapy. This degree requires 120 credit hours for graduation. The University of Toledo, Recreational Therapy Program is accredited by the Commission on Accreditation of Allied Health Education Programs (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.caahep.org%2F&data=05%7C02%7CJohn.Laux%40UToledo.Edu%7C43b942d9f5d747f7e21d08de9efbcd4b%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C639123001481343849%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlA%3D%3D%7C0%7C%7C%7C&sdata=CbRFA1V434sABmRVTUAl6f2sZiORIEH4ml0CSq%2Bkfwk%3D&reserved=0) upon the recommendation of the Committee on Accreditation for Recreational Therapy Education (CARTE).

Students enrolling in the recreational 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 recreational therapy program complete a pre-professional course sequence their freshman and sophomore years consisting of undergraduate core curriculum courses, pre-recreational therapy curriculum courses and recreational therapy support courses. Upon acceptance into the professional sequence entering their junior year, students complete 46 credit hours of recreational therapy-specific coursework followed by a 15-credit hour, 560-clock hour internship the summer of their senior year.

Code	Title	Hours
ENGL 1110	College Composition I	3
HHS 1000	Health And Human Services/College Orientation	1
MATH 1180	Reasoning With Mathematics (**MATH 2600 Statistics - Pre OT))	3
PSY 1010	Principles Of Psychology	3
RCRT 1300	Introduction To Recreation And Leisure Studies	3
PSC 1210	American National Government and Civics	3
ENGL 2960	Professional and Business Writing	3
PSY 2510	Lifespan Developmental Psychology	3
RCRT 1310	Introduction to Recreational Therapy Programming	3
Core Elective		3
Natural Science Core		3
EXSC 1560	Fundamentals of Anatomy and Physiology	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
PSY 2200	Abnormal Psychology	3
Arts/Humanities Core (Non-US Diversity)		3
RCRT 4720	Introduction To Recreational Therapy	3
HEAL 1800	Medical Terminology	3
RCRT 3310	Inclusion and Recreational Therapy Services [1]	3
Core Elective		3
Arts/Humanities Core		3
RCRT 4340	Leisure, Recreation, And Aging in Recreational Therapy Practice	3
RCRT 4730	Physical and Neurological Diagnosis and Conditions in Recreational Therapy Practice	3
RCRT 4740	Assessment And Documentation In Recreational Therapy	3
RCRT 4560	Recreational Therapy Interventions 1	3.0
RCRT 4040	Recreational Therapy Services within the Veterans Administration	3
RCRT 4750	Group Dynamics In Recreational Therapy	3
RCRT 4790	Psychological Diagnosis and Conditions in Recreational Therapy Practice	3
RCRT 4565	Recreational Therapy Interventions 2	3.0
RCRT 3710	Outdoor and Adaptive Sports Program Delivery in Recreational Therapy Practice	3
RCRT 4450	Research Applications In Recreational Therapy	3
RCRT 4000	Community and Event Planning in Recreational Therapy Service	3
RCRT 4810	Recreational Therapy Fieldwork 1	1
RCRT 4820	Recreational Therapy Fieldwork 2	1
RCRT 4570	Recreational Therapy Interventions 3	2.0
RCRT 4850	Recreational Therapy Internship Preparation	1
RCRT 4330	Administration In Recreational Therapy	3
RCRT 4870	Comprehensive Program Planning In Recreational Therapy	3
Core Elective		3
Multicultural Elective - US		3
RCRT 4830	Recreational Therapy Fieldwork 3	1
RCRT 4840	Recreational Therapy Fieldwork 4	1
RCRT 4770	Recreational Therapy Project Design	1
RCRT 4780	Recreational Therapy Project Evaluation	1
RCRT 4950	Recreation Therapy Internship I	5
RCRT 4960	Recreation Therapy Internship II	5
Total Hours		**120**

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 [1]	3

RCRT 1300	Introduction To Recreation And Leisure Studies [1]	3
PSC 1210	American National Government and Civics	3
	Hours	**16**
Second Term		
ENGL 2960	Professional and Business Writing	3
PSY 2510	Lifespan Developmental Psychology [1]	3
RCRT 1310	Introduction to Recreational Therapy Programming [1]	3
Natural Sciences Core		3
Core Elective		3
	Hours	**15**
Third Term		
EXSC 1560	Fundamentals of Anatomy and Physiology [1]	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab [1]	1
PSY 2200	Abnormal Psychology [1]	3
Arts/Humanities Core (Non-US Diversity)		3
RCRT 4720	Introduction To Recreational Therapy [1]	3
	Hours	**13**
Fourth Term		
HEAL 1800	Medical Terminology [1]	3
RCRT 3310	Inclusion and Recreational Therapy Services [1]	3
Core Elective		3
Arts/Humanities Core		3
	Hours	**12**
Fifth Term		
RCRT 4340	Leisure, Recreation, And Aging in Recreational Therapy Practice [1]	3
RCRT 4730	Physical and Neurological Diagnosis and Conditions in Recreational Therapy Practice [1]	3
RCRT 4740	Assessment And Documentation In Recreational Therapy [1]	3
RCRT 4560	Recreational Therapy Interventions 1 [1]	3.0
	Hours	**12**
Sixth Term		
RCRT 4040	Recreational Therapy Services within the Veterans Administration [1]	3
RCRT 4750	Group Dynamics In Recreational Therapy [1]	3
RCRT 4790	Psychological Diagnosis and Conditions in Recreational Therapy Practice [1]	3
RCRT 4565	Recreational Therapy Interventions 2 [1]	3.0
	Hours	**12**
Seventh Term		
RCRT 3710	Outdoor and Adaptive Sports Program Delivery in Recreational Therapy Practice [1]	3
RCRT 4450	Research Applications In Recreational Therapy [1]	3
RCRT 4000	Community and Event Planning in Recreational Therapy Service [1]	3
RCRT 4810	Recreational Therapy Fieldwork 1 [1]	1
RCRT 4820	Recreational Therapy Fieldwork 2 [1]	1
RCRT 4570	Recreational Therapy Interventions 3 [1]	2.0
RCRT 4850	Recreational Therapy Internship Preparation [1]	1
	Hours	**14**
Eighth Term		
RCRT 4330	Administration In Recreational Therapy [1]	3
RCRT 4870	Comprehensive Program Planning In Recreational Therapy [1]	3
Core Elective		3
Multicultural Core US		3
RCRT 4830	Recreational Therapy Fieldwork 3 [1]	1
RCRT 4840	Recreational Therapy Fieldwork 4 [1]	1
	Hours	**14**
Ninth Term		
Summer		
RCRT 4950	Recreation Therapy Internship I [1]	5
RCRT 4770	Recreational Therapy Project Design [1]	1
RCRT 4960	Recreation Therapy Internship II [1]	5
RCRT 4780	Recreational Therapy Project Evaluation [1]	1
	Hours	**12**
	Total Hours	**120**

[1] A "C" or better is required in this course.

- The University of Toledo Recreational Therapy program prepares competent entry-level recreational therapists in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains as evidenced by offering a curriculum that provides students the opportunity to: • integrate a comprehensive understanding of history, service models, theories, philosophies, ethics, credentials, professional conduct, evidence-based practices, and professional development within the field of recreational therapy (RT) practice
- • develop the ability to independently and effectively screen, assess, and gather comprehensive and accurate data about patients/clients to inform the development of an appropriate course of action through creation of individualized treatment plans that include functional goals, modalities, facilitation techniques, and interventions AEB students earning a C or higher in all RCRT course work.
- • explore, experience, and create evidence-based interventions and facilitation techniques to enhance patient/client outcomes, functionality, and independence in activities of choice AEB students earning a C or higher in all RCRT course work.
- • develop skills necessary to understand, develop, and conduct evaluation and research to determine the effectiveness of treatment interventions and programs used to reach patient/client outcomes AEB students earning a C or higher in all RCRT course work.
- • develop knowledge in the areas of administrative functions necessary in professional practice such as management of staff and volunteers, department oversite, professional advocacy, and

professional development AEB students earning a C or higher in all RCRT 4330.

- • develop a strong foundation for recreational therapy practice through exploration of human anatomy and physiology, understanding of the psychology of human growth and development, abnormal psychology, and healthcare delivery of services AEB by earning a C or higher in EXSC 1460/1560, PSY 2510/2200.

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

First Term		Hours
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 [1]	3
Arts/Humanities Core		3
	Hours	**16**
Second Term		
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
	Hours	**15**
Third Term		
CMPT 1100	Microsoft Office Applications	3
PSC 1200 or PSC 1210	American National Government [1] or American National Government and Civics	3
PSY 1010	Principles Of Psychology	3
SOCW 2010	Survey Of The Social Work Profession [1]	4
Elective		3
	Hours	**16**
Fourth Term		
ANTH 2800	Cultural Anthropology	3
Natural Sciences Core		3
Natural Science Core Laboratory		1
Social Work Elective [1]		3
Elective		6
	Hours	**16**
Fifth Term		
SOCW 3110	Social Work Practice I [1]	3
SOCW 3210	Human Behavior in the Soc Environment I [1]	3
SOCW 3300	Social Policy And Legislation [1]	3
SOCW 3410	Social Work Research Practicum I [1]	3
AFST, DST, PSY, SOC or WGST course		3
	Hours	**15**
Sixth Term		
SOCW 3120	Social Work Interviewing And Recording [1]	4
SOCW 3220	Human Behavior In Social Environment II [1]	3
SOCW 3230	Human Behavior in the Social Environment III [1]	3
SOCW 3420	Social Work Research Practicum II [1]	3
SOCW 3090	Social Work Perspectives On Culture And Oppression [1]	3
	Hours	**16**
Seventh Term		
SOCW 4120	Social Work Practice II [1]	3
SOCW 4200	Field Seminar II [1]	1
SOCW 4220	Social Work Field Experience II [1]	5
Diversity of US (History)		3
	Hours	**12**
Eighth Term		
SOCW 4130	Social Work Practice III [1]	3
SOCW 4210	Field Seminar III [1]	1
SOCW 4230	Field Experience III [1]	5

Elective	5
Hours	**14**
Total Hours	**120**

[1] 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
Total Hours		**22**

- PLO 1: Students will learn the necessary knowledge and skills for chemical dependency counseling.

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
Required Course		
COUN 1110	Fundamentals Of Human Mental Health	4
Electives		
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 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	
Total Hours		**19**

- 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.

Department of Population Health

Joseph Dake, Chair and Public Health Program Director
Kip Miller, Healthcare Administration Program Director
Sarah Long, Health Sciences Program Director

The Department of Population Health offers undergraduate degree programs in healthcare administration, health sciences, and public health. Minors in health sciences and public health are available.

Degrees Offered

- BS in Healthcare Administration (p. 128)
- BA in Health Sciences (p. 94)
- BS in Health Sciences (p. 100)
- BS in Public Health (p. 144)
- Minor in Health Sciences (p. 147)
- Minor in Public Health (p. 147)

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 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 Public Health Internship I
[3 credit hours]
This course provides a supervised introductory field experience in a public health or community health setting designed to familiarize students with the structure and functions of public health practice. Students participate in an entry-level internship under the guidance of a qualified site supervisor and a University of Toledo Internship Advisor (course instructor). The experience emphasizes exposure to real-world public health activities, professional expectations, and foundational public health competencies while helping students explore potential areas of interest within the field.
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 3200 Consumer Health
[3 credit hours]
This course helps students develop the skills needed to make informed decisions about their health in today's environment of social media. Students learn how to evaluate health information from online sources, social media, advertising, and news outlets, recognize misleading claims and scams, and understand how health products and services are marketed. The course also introduces basic concepts related to health insurance and accessing care, along with strategies for communicating with healthcare providers and understanding medical information. Emphasis is placed on health literacy, critical thinking, personal advocacy, and everyday decision-making. By the end of the course, students will be better prepared to assess health claims, protect themselves from fraud, and make thoughtful choices about their health and wellness.
Term Offered: 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.
Term Offered: Fall

HEAL 4200 Planning, Implementing, and Evaluating Public Health Programs
[3 credit hours]
This senior-level course focuses on the practical skills needed to plan, implement, and evaluate public health programs. Students learn how to assess community health needs, use population data and scientific literature to guide decision making, and apply theory and social determinants of health to program design. The course emphasizes developing realistic interventions, identifying stakeholders and resources, planning for implementation, and designing basic evaluation strategies. Through a series of connected assignments, students build toward a final grant proposal that reflects real-world public health practice.
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 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 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 Public Health Internship II
[6 credit hours]
This course provides a supervised field experience in a public health setting designed to deepen students' understanding of their chosen concentration area. Students complete a structured internship under the guidance of a qualified site supervisor and a University of Toledo Internship Advisor (course instructor). The experience emphasizes application of concentration-specific knowledge, development of professional skills, and engagement in projects or activities that align with program competencies and career goals.
Prerequisites: HEAL 2940 with a minimum grade of C
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

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 students with their transition to college life. Content will include discussion of effective organizational and study strategies, identifying campus resources, and developing key professional behaviors to support academic success and personal wellbeing.
Term Offered: Fall

HHS 1020 Introduction to Health Sciences II
[2 credit hours]
This course 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 help students refine their study and organizational skills and explore a variety of healthcare and health-related professions that align with a health sciences degree.
Term Offered: Spring

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 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 healthcare and health-related professions 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 culminative 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

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: Spring, 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

PUBH 3650 Zombie Apocalypse 101: Outbreak Response
[3 credit hours]
This is a scenario-based exploration of infectious disease dynamics through the lens of a fictional undead outbreak. Students will investigate how real-world epidemiologic principles—such as transmission modeling, outbreak investigation, contact tracing, and public health response—apply in the face of a rapidly spreading zombie pathogen. Using case studies, simulations, and cinematic references, the course challenges learners to think critically about surveillance systems, ethical triage, and the collapse of health infrastructure under extreme conditions. Designed for students of public health, biology, and the apocalypse-curious, this course fuses science with storytelling to illuminate the complexities of pandemic preparedness. Participants will engage in hands-on activities like designing containment strategies, calculating R# for zombie variants, and debating quarantine ethics in a world where the infected bite back. This course is designed to develop critical and creative thinking, responsibility, and a strong interest in issues relevant to infectious disease epidemiology. You will be introduced to the special design, measurement, analysis, and intervention issues associated with infectious diseases. We will address contemporary infectious diseases of public health importance, which in 2025 is a resurgence in avian influenza and measles. We will try to look at many issues from different perspectives which include the general public, patients, healthcare facilities, families and friends, physicians, public health workers, and government officials. This course will provide you with real world knowledge about important and relevant infectious diseases in the United States and around the world. You should finish this course with a solid foundation and understanding of these diseases and how they impact the health and well-being of populations and how professionals from many disciplines work with each other to prevent, diagnose, and treat these diseases.
Term Offered: Spring

PUBH 4150 Health Coaching
[3 credit hours]
This course introduces evidence-based health coaching methods used to support behavior change and lifestyle improvement across diverse populations and locations. The course emphasizes health communication, motivation enhancement, goal setting, action planning, self-monitoring, and problem-solving strategies grounded in established health behavior theory. Students develop practical coaching competencies through skills labs, simulated coaching sessions, documentation, and reflective practice.
Prerequisites: EXSC 3240 with a minimum grade of D-
Term Offered: Fall

PUBH 4420 Social Marketing in Health
[3 credit hours]
The Centers for Disease Control and Prevention (CDC) identify social marketing as a practice allied with Health Education and Health Promotion. The CDC encourages programs to apply the principles of social marketing to health behavior change efforts in order to increase the effectiveness of interventions. Social marketing uses audience research to determine target audience segmentation into groups with common risk behaviors, motivations, and information channel preferences. Key audience segments are then reached with the mix of intervention strategies formed by the "4 P's" of social marketing, namely product, price, place, and promotion. The final product is designed based on the needs and desires of the consumer and persuasive messages promoting behavior change are promoted to the target audience. Continuous evaluation and message revision allows for ongoing refinement on the basis of consumer feedback.
Term Offered: Spring

PUBH 4620 Introduction to Health Policy and Health Systems
[3 credit hours]
This course examines public health and healthcare policy from a public health perspective. It emphasizes the interrelatedness of law, the policymaking process, and governmental public health; addresses essential issues in health policy and law (e.g., health insurance, health economics, government health insurances, the uninsured); and introduces health policy analysis.
Term Offered: Spring

PUBH 4700 Risk Assessment
[3 credit hours]
Scientific and management principles of human health risk assessment including hazard identification, toxicity assessment, exposure assessment, risk characterization and communication relative to public, environmental, and occupational health.
Term Offered: Spring

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
	Hours	**15**
Second Term		
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
	Hours	**15**
Third Term		
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
	Hours	**15**
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
	Hours	**16**
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
	Hours	**15**
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
	Hours	**16**
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
	Hours	**13**
Eighth Term		
HCAR 4540	Internship In Health Management	3
HCAR 4580	Leadership and Management in Healthcare	3
HURM 3220	Human Resource Management	3
Program Elective		3
Elective		3
	Hours	**15**
	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.

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-Graduate Entry Nursing concentration best for students that already have some undergraduate college credits and are interested in attending masters-level Registered Nursing (RN) 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 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.

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- Health Sciences - Pre-Occupational Therapy Concentration, BA (p. 95)
- Health Sciences - Social Determinants of Health Concentration, BA (p. 95)

Health Sciences - Pre-Graduate Entry Nursing Concentration, BA

Code	Title	Hours
UToledo Core Curriculum (44 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 2600	Introduction To Statistics	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3

or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts		3
PSY 1010	Principles Of Psychology	3
SOC 1010	Introduction To Sociology	3
BIOL 1120	Survey Of Biology	3
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
CLT 2000	The American Constitutional Tradition	3
or PSC 1210	American National Government and Civics	
Core Electives		6
U.S. Diversity		3
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (38 hours)		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
HEAL 1800	Medical Terminology	3
HEAL 3600	Prevention And Control Of Disease	3
HEAL 4100	Health Behavior	3
HEAL 4900	Health Education Seminar	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
HHS 4800	Health Sciences Capstone I	3
HHS 4810	Health Sciences Capstone II	3
HIM 2300	Healthcare Resources, Payers	3
Supplemental Major Course (choose 1)		
PHIL 3370	Medical Ethics Recommended	3
or HIM 4230	Compliance and Ethical Issues	
or LGL 4230	Health Care And The Law	

Code	Title	Hours
Pre-Graduate Entry Nursing Concentration Required Courses (16 hours)		
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 2400	General Safety	3
or HEAL 2500	Personal Health	
or HEAL 2600	Mental Health	
PSY 2200	Abnormal Psychology	3
PSY 2510	Lifespan Developmental Psychology	3

Code	Title	Hours
General Electives (22 hours) EXSC or HEAL recommended		**22**

Health Sciences - Pre-Occupational Therapy Concentration, BA Requirements

Code	Title	Hours
UToledo Core Curriculum (44 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 2600	Introduction To Statistics	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
COCA 2000	Mindful Creativity Recommended	3
PSY 1010	Principles Of Psychology	3
SOC 1010	Introduction To Sociology	3
BIOL 1120	Survey Of Biology	3
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
CLT 2000	The American Constitutional Tradition	3
or PSC 1210	American National Government and Civics	
Core Electives		6
DST 2020	Introduction to Disability Studies Recommended	3
ANTH 2800	Cultural Anthropology Recommended	3

Code	Title	Hours
Required Health Sciences Major Courses (38 hours)		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
HEAL 1800	Medical Terminology	3
HEAL 3600	Prevention And Control Of Disease	3
HEAL 4100	Health Behavior	3
HEAL 4900	Health Education Seminar	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
HHS 4800	Health Sciences Capstone I	3
HHS 4810	Health Sciences Capstone II	3
HIM 2300	Healthcare Resources, Payers	3
Choose 1 Supplemental Major course (3 credit hours)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
Pre-Occupational Therapy Concentration Requirements (19 hours)		
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 2400	General Safety	3
or HEAL 2500	Personal Health	

or HEAL 2600	Mental Health	
OCCT 2550	Purposeful Living: The role of occupational therapy	3
PSY 2200	Abnormal Psychology	3
PSY 2510	Lifespan Developmental Psychology	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3

Code	Title	Hours
General Electives (19 hours) EXSC or HEAL recommended		**19**

Health Sciences - Social Determinants of Health Concentration, BA Requirements

Code	Title	Hours
UToledo Core Curriculum (44 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 2600	Introduction To Statistics	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts		3
PSY 1010	Principles Of Psychology	3
SOC 1010	Introduction To Sociology	3
BIOL 1120	Survey Of Biology	3
EXSC 1560	Fundamentals of Anatomy and Physiology	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
CLT 2000	The American Constitutional Tradition	3
or PSC 1210	American National Government and Civics	
Core Electives		6
U.S. Diversity		3
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (38 hours)		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
HEAL 1800	Medical Terminology	3
HEAL 3600	Prevention And Control Of Disease	3
HEAL 4100	Health Behavior	3
HEAL 4900	Health Education Seminar	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
HHS 4800	Health Sciences Capstone I	3
HHS 4810	Health Sciences Capstone II	3
HIM 2300	Healthcare Resources, Payers	3
Supplemental Major Course (choose 1)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
Social Determinants of Health Concentration Courses (38 hours)		
Required Courses (12 hours)		
COMM 3760	Health Communication	3
HEAL 2100	Living Well	3
HEAL 2500	Personal Health	3
HEAL 2700	Introduction to Public Health	3
Supporting Courses (select an additional 26 hours)		*26*
ANTH 3330	Food, Health, Society	
ANTH 4760	Medical Anthropology	
COMM 2500	Introduction to Social Media	
COMM 3500	Social Media Strategies	
COMM 2600	Public Presentations	
COMM 2820	Group Communication	
COMM 2830	Organizational Communication	
COMM 4830	Gender, Culture and 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	
DATA 4500	Data Science II	
DATA 2500	Data Science I	
DST 2020	Introduction to Disability Studies	
EEES 1050	Geological Hazards And The Environment	
EEES 1170	Microbes And Society	
EDP 4220	Adolescent Behavior And Development	
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	
HEAL 2400	General Safety	
HEAL 2600	Mental Health	
HEAL 2800	Principles Of Nutrition	
HEAL 3500	Environmental Health	
HEAL 3800	Death And Dying	
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 4330	Leading Organizational Change and Development	

MGMT 4780	Leading and Managing People
OCCT 2550	Purposeful Living: The 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 Recreational Therapy
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 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

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- Health Sciences - Social Determinants of Health Concentration, BA (p. 98) (p. 98)

Health Sciences - Pre-Graduate Entry Nursing Concentration, BA

First Term		Hours
ENGL 1110	College Composition I	3
HEAL 1800	Medical Terminology	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
MATH 2600	Introduction To Statistics	3
PSY 1010	Principles Of Psychology	3
Core Elective		3
	Hours	**16**
Second Term		
BIOL 1120	Survey Of Biology	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 1020	Introduction to Health Sciences II	2
SOC 1010	Introduction To Sociology	3
General Elective	EXSC or HEAL recommended	3
	Hours	**14**
Third Term		
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
HEAL 2400 or HEAL 2500 or HEAL 2600	General Safety or Personal Health or Mental Health	3
Core Elective		3
General Elective	See list of suggested electives	3
	Hours	**16**
Fourth Term		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
U.S. Diversity		3
Humanities/Fine Arts		3
General Elective	EXSC or HEAL recommended	3
	Hours	**16**
Fifth Term		
HEAL 4100	Health Behavior	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HIM 2300	Healthcare Resources, Payers	3
PSY 2200	Abnormal Psychology	3
Non-U.S. Diversity		3
	Hours	**15**
Sixth Term		
EXSC 2590	Microbiology and Infectious Diseases	3
HEAL 3600	Prevention And Control Of Disease	3
HHS 4100	Foundations of Healthcare Delivery	3
PSY 2510	Lifespan Developmental Psychology	3
CLT 2000 or PSC 1210	The American Constitutional Tradition or American National Government and Civics	3
	Hours	**15**
Seventh Term		
HHS 4800	Health Sciences Capstone I	3
PHIL 3370	Medical Ethics	3
COMM 1010 or COMM 2840	Communication Principles And Practices recommended or Interpersonal Communication	3

General Elective	EXSC or HEAL recommended	3
General Elective		3
	Hours	**15**
Eighth Term		
HEAL 4900	Health Education Seminar	3
HHS 4810	Health Sciences Capstone II	3
General Elective	EXSC or HEAL recommended	3
General Elective		4
	Hours	**13**
	Total Hours	**120**

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Health Sciences - Pre-Occupational Therapy Concentration, BA Plan of Study

First Term		**Hours**
ENGL 1110	College Composition I	3
HEAL 1800	Medical Terminology	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
MATH 2600	Introduction To Statistics	3
PSY 1010	Principles Of Psychology	3
ANTH 2800	Cultural Anthropology Recommended Non-U.S. Diversity	3
	Hours	**16**
Second Term		
BIOL 1120	Survey Of Biology	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 1020	Introduction to Health Sciences II	2
SOC 1010	Introduction To Sociology	3
General Elective	CMPT 1100 recommended	3
	Hours	**14**
Third Term		
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
OCCT 2550	Purposeful Living: The role of occupational therapy	3
COMM 1010 or COMM 2840	Communication Principles And Practices Recommended or Interpersonal Communication	3
General Elective	ART 1040 recommended	3
	Hours	**16**
Fourth Term		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 2400 or HEAL 2500 or HEAL 2600	General Safety or Personal Health or Mental Health	3
DST 2020	Introduction to Disability Studies Recommended U.S. Diversity	3
COCA 2000	Mindful Creativity Recommended Humanities/ Fine Arts	3
	Hours	**16**
Fifth Term		
HEAL 4100	Health Behavior	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HIM 2300	Healthcare Resources, Payers	3
PSY 2200	Abnormal Psychology	3
CLT 2000 or PSC 1210	The American Constitutional Tradition or American National Government and Civics	3
	Hours	**15**
Sixth Term		
HEAL 3600	Prevention And Control Of Disease	3
HHS 4100	Foundations of Healthcare Delivery	3
PSY 2510	Lifespan Developmental Psychology	3
Core Elective	PHYS 1300 recommended	3
General Elective		3
	Hours	**15**
Seventh Term		
HHS 4800	Health Sciences Capstone I	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
Supplemental Major Course (Select 1- HIM 4230, LGL 4230, PHIL 3370)		3
Core Elective		3
General Elective	EXSC or HEAL recommended	3
	Hours	**15**
Eighth Term		
HEAL 4900	Health Education Seminar	3
HHS 4810	Health Sciences Capstone II	3
General Elective		3
General Elective		4
	Hours	**13**
	Total Hours	**120**

Health Sciences - Social Determinants of Health Concentration, BA Plan of Study

First Term		**Hours**
ENGL 1110	College Composition I	3
EXSC 1560	Fundamentals of Anatomy and Physiology	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
HHS 1010	Introduction to Health Sciences I with Orientation	1

PSY 1010	Principles Of Psychology	3
U.S. Diversity		3
	Hours	**14**
Second Term		
BIOL 1120	Survey Of Biology	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 1020	Introduction to Health Sciences II	2
SOC 1010	Introduction To Sociology	3
Supporting Course	See list of suggested courses	3
Supporting Course	See list of suggested courses	3
	Hours	**17**
Third Term		
HEAL 2700	Introduction to Public Health	3
HHS 3100	Introduction to Social Determinants of Health	3
HIM 2300	Healthcare Resources, Payers	3
Supporting Course	See list of suggested courses	3
Supporting Course	See list of suggested courses	3
	Hours	**15**
Fourth Term		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
HEAL 1800	Medical Terminology	3
CLT 2000 or PSC 1210	The American Constitutional Tradition or American National Government and Civics	3
Core Elective		3
Humanities/Fine Arts		3
	Hours	**15**
Fifth Term		
HEAL 3600	Prevention And Control Of Disease	3
HEAL 4100	Health Behavior	3
COMM 1010 or COMM 2840	recommended	3
Non-U.S. Diversity		3
Supporting Course	See list of suggested courses	3
	Hours	**15**
Sixth Term		
HEAL 2100	Living Well	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
Core Elective		3
Supporting Course	See list of suggested courses	3
Supporting Course	See list of suggested courses	2
	Hours	**14**
Seventh Term		
COMM 3760	Health Communication	3
HEAL 2500	Personal Health	3
HHS 4800	Health Sciences Capstone I	3
MATH 2600	Introduction To Statistics	3
Supporting Course		3
	Hours	**15**
Eighth Term		
HEAL 4900	Health Education Seminar	3
HHS 4100	Foundations of Healthcare Delivery	3
HHS 4810	Health Sciences Capstone II	3
Supplemental Major Course (Choose 1- HIM 4230, LGL 4230, PHIL 3370)		3
Supporting Course		3
	Hours	**15**
	Total Hours	**120**

- Health Sciences - Pre-Graduate Entry Nursing Concentration, BA (p. 94)
- Health Sciences - Pre-Occupational Therapy Concentration, BA (p. 99)
- Health Sciences - Social Determinants of Health Concentration, BA (p. 99)

Health Sciences - Pre-Graduate Entry Nursing Concentration, BA

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

Health Sciences - Pre-Occupational Therapy Concentration, BA Learning Outcomes

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement,

interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

Health Sciences - Social Determinants of Health Concentration, BA Learning Outcomes

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

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 - General Concentration, BS (p. 100)
- Health Sciences - Human Performance & Fitness Promotion Concentration, BS (p. 101)
- Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS (p. 101)
- Health Sciences - Pre-Medical Professions Concentration, BS (p. 102)
- Health Sciences - Pre-Physician Assistant Concentration, BS (p. 103)

Health Sciences - General Concentration, BS

Code	Title	Hours
UToledo Core Curriculum (46-47 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select one of the options		5-6
MATH 1340	College Algebra And Trigonometry	
MATH 1330 & MATH 1320	Trigonometry and College Algebra	
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts and U.S. Diversity		3
PSY 1010	Principles Of Psychology	3
PSC 1210	American National Government and Civics	3

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 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (33 hours) C or better		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology	3
HEAL 4700	Nutritional Science	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
Supplemental Major Course (choose 1)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
General Elective Courses (40-41 hours, 12 must be at the 3000/4000 level) EXSC and HEAL courses recommended		**40-41**

Health Sciences - Human Performance & Fitness Promotion Concentration, BS Requirements

Code	Title	Hours
UToledo Core Curriculum (46-47 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1340	College Algebra And Trigonometry	5,6
or MATH 1320	College Algebra	
or MATH 1330	Trigonometry	
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts and U.S. Diversity		3
PSY 1010	Principles Of Psychology	3
PSC 1210	American National Government and Civics	3
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 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (33 hours) C or better		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology	3
HEAL 4700	Nutritional Science	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
Supplemental Major Course (choose 1)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
Human Performance Fitness Promotion Concentration (35 hours) C or better		
EXSC 3520	Applied Exercise Physiology	3
EXSC 3530	Applied Exercise Physiology Laboratory	1
EXSC 3680	Sport and Exercise Pharmacology	3
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
EXSC 4850	Clinical Exercise Testing	3
EXSC 4860	Clinical Exercise Testing Lab	1
EXSC 4140	Fitness Internship I	4
EXSC 4210	Exercise Facility Management	3
EXSC 4840	Fitness Internship II	4
Supplemental Concentration Course (choose 1)		
EXSC 4540	Applied Biomechanics	3

or EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	
Code	**Title**	**Hours**
General Electives	HEAL courses recommended	6

Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS Requirements

Code	Title	Hours
UToledo Core Curriculum (46-47 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Select one of the following math options		5,6
MATH 1340	College Algebra And Trigonometry	
MATH 1320 & MATH 1330	College Algebra and Trigonometry	
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts and U.S. Diversity		3
PSY 1010	Principles Of Psychology	3
PSC 1210	American National Government and Civics	3
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 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (33 hours) C or better		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology	3
HEAL 4700	Nutritional Science	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
Supplemental Major Course (choose 1)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
Required Pre-Athletic Training and Pre-Physical Therapy Concentration Courses (28 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
EXSC 3520	Applied Exercise Physiology	3
EXSC 3530	Applied Exercise Physiology Laboratory	1
EXSC 4540	Applied Biomechanics	3
EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	3
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
PSY 2200	Abnormal Psychology	3
or PSY 2510	Lifespan Developmental Psychology	
or PSY 2700	Social Psychology	

Code	Title	Hours
General Electives (12-13 hours; at least three hours should be upper level) EXSC and HEAL courses recommended		12-13

Health Sciences - Pre-Medical Professions Concentration, BS Requirements

Code	Title	Hours
UToledo Core Curriculum (46-47 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1340	College Algebra And Trigonometry	5,6
or MATH 1320	College Algebra	
or MATH 1330	Trigonometry	
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts and U.S. Diversity		3
PSY 1010	Principles Of Psychology	3
PSC 1210	American National Government and Civics	3
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 2560	Anatomy and Physiology I	3

EXSC 2460	Human Anatomy And Physiology I Lab	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (33 hours) [C or better]		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology	3
HEAL 4700	Nutritional Science	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
Supplemental Major Course (choose 1)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
Pre-Medical Professions Concentration (29-30 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
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	4
PHYS 2085	General Physics II - Lab	1
CHEM 3510	Biochemistry I	3
Supplemental Concentration Course (choose 1)		
EXSC 3200	Advanced Human Anatomy	3
EXSC 3520/3530	Applied Exercise Physiology	3
EXSC 4540	Applied Biomechanics	3
EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	3

Code	Title	Hours
General Electives (12 hours, 6 must be 3000/4000 level) [BIOL, EXSC, HEAL, PSY 2510 recommended]		**12**

Health Sciences - Pre-Physician Assistant Concentration, BS Requirements

Code	Title	Hours
UToledo Core Curriculum (46-47 hours)		
ENGL 1110	College Composition I	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1340	College Algebra And Trigonometry	5,6
or MATH 1320	College Algebra	
or MATH 1330	Trigonometry	
HHS 1010	Introduction to Health Sciences I with Orientation	1
COMM 1010	Communication Principles And Practices Recommended	3
or COMM 2840	Interpersonal Communication	
Humanities/Fine Arts and U.S. Diversity		3
PSY 1010	Principles Of Psychology	3
PSC 1210	American National Government and Civics	3
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 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-U.S. Diversity		3

Code	Title	Hours
Required Health Sciences Major Courses (33 hours) [C or better]		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology	3
HEAL 4700	Nutritional Science	3
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
Supplemental Major Course (choose 1)		
HIM 4230	Compliance and Ethical Issues	3
or LGL 4230	Health Care And The Law	
or PHIL 3370	Medical Ethics	

Code	Title	Hours
Pre-Physician Assistant Concentration (30-31 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 3030	Cell Biology	3
BIOL 4030	Microbiology	3
BIOL 4040	Microbiology Laboratory	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
PSY 2510	Lifespan Developmental Psychology	3
Supplemental Concentration Course (choose 1)		
EXSC 3200	Advanced Human Anatomy	3
EXSC 3520/3530	Applied Exercise Physiology	3
EXSC 4540	Applied Biomechanics	3
EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	3

Code	Title	Hours
General Electives (11 hours; EXSC or HEAL courses recommended)		11

- Health Sciences - General Concentration, BS (p. 100)
- Health Sciences - Human Performance & Fitness Promotion Concentration, BS (p. 104)
- Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS (p. 105)
- Health Sciences - Pre-Medical Professions Concentration, BS (p. 106)
- Health Sciences - Pre-Physician Assistant Concentration, BS (p. 107)

Health Sciences - General Concentration, BS

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
	Hours	**14**
Second Term		
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 1020	Introduction to Health Sciences II	2
PSY 1010	Principles Of Psychology	3
COMM 1010 or COMM 2840	recommended	3
General Elective	EXSC or HEAL recommended	3
General Elective	EXSC or HEAL recommended	3
	Hours	**17**
Third Term		
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
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
PSC 1210	American National Government and Civics	3
	Hours	**15**
Fourth Term		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 1800	Medical Terminology	3
General Elective		3
General Elective	EXSC or HEAL recommended	3
	Hours	**16**
Fifth Term		
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-U.S. Diversity		3
General Elective	Upper-level EXSC or HEAL recommended	3
General Elective		3
	Hours	**14**
Sixth Term		
EXSC 2580	Human Pathophysiology For Health Care	3
HHS 4100	Foundations of Healthcare Delivery	3
Humanities/Fine Arts and U.S. Diversity		3
General Elective	Upper-level EXSC or HEAL recommended	3
General Elective	EXSC or HEAL recommended	3
	Hours	**15**
Seventh Term		
HEAL 4700	Nutritional Science	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
MATH 2600	Introduction To Statistics	3
General Elective	Upper-level EXSC or HEAL recommended	3
General Elective		3
	Hours	**15**
Eighth Term		
Supplemental Major Course (Choose 1- HIM 4230, LGL 4230, PHIL 3370)		3
General Elective	Upper-level EXSC or HEAL recommended	3
General Elective	EXSC or HEAL recommended	3
General Elective		3

General Elective		2
	Hours	**14**
	Total Hours	**120**

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
	Hours	**14**
Second Term		
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
HEAL 1800	Medical Terminology	3
HHS 1020	Introduction to Health Sciences II	2
PSY 1010	Principles Of Psychology	3
	Hours	**15**
Third Term		
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
Non-U.S. Diversity		3
	Hours	**15**
Fourth Term		
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 3520	Applied Exercise Physiology	3
EXSC 3530	Applied Exercise Physiology Laboratory	1
PSC 1210	American National Government and Civics	3
COMM 1010 or COMM 2840 recommended		3
	Hours	**13**
Fifth Term		
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
	Hours	**15**
Sixth Term		
EXSC 3680	Sport and Exercise Pharmacology	3
EXSC 4850	Clinical Exercise Testing	3
EXSC 4860	Clinical Exercise Testing Lab	1
HHS 4100	Foundations of Healthcare Delivery	3
MATH 2600	Introduction To Statistics	3
General Elective HEAL course recommended		3
	Hours	**16**
Seventh Term		
EXSC 2580	Human Pathophysiology For Health Care	3
EXSC 4140	Fitness Internship I	4
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
Supplemental Concentration Course (Choose 1- EXSC 4540, EXSC 4640)		3
General Elective HEAL course recommended		3
	Hours	**16**
Eighth Term		
EXSC 4210	Exercise Facility Management	3
EXSC 4840	Fitness Internship II	4
HEAL 4700	Nutritional Science	3
Supplemental Major Course (Choose 1- HIM 4230, LGL 4230, PHIL 3370)		3
Humanities/Fine Arts and U.S. Diversity		3
	Hours	**16**
	Total Hours	**120**

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
ENGL 1110	College Composition I	3
HHS 1010	Introduction to Health Sciences I with Orientation	1
MATH 1340	College Algebra And Trigonometry	5
	Hours	**14**
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
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
HHS 1020	Introduction to Health Sciences II	2
PSY 1010	Principles Of Psychology	3

COMM 1010 or COMM 2840 recommended		3
	Hours	**16**
Third Term		
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
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
PSC 1210	American National Government and Civics	3
	Hours	**15**
Fourth Term		
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 1800	Medical Terminology	3
	Hours	**15**
Fifth Term		
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 or PSY 2510 or PSY 2700	Abnormal Psychology or Lifespan Developmental Psychology or Social Psychology	3
Humanities/Fine Arts and U.S. Diversity		3
	Hours	**15**
Sixth Term		
EXSC 2580	Human Pathophysiology For Health Care	3
HHS 4100	Foundations of Healthcare Delivery	3
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
Non-U.S. Diversity		3
General Elective EXSC or HEAL recommended		3
	Hours	**17**
Seventh Term		
EXSC 4540	Applied Biomechanics	3
HEAL 4700	Nutritional Science	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
MATH 2600	Introduction To Statistics	3
General Elective Upper-level EXSC or HEAL recommended		3
	Hours	**15**
Eighth Term		
EXSC 4640	Neurological And Pathological Foundations Of Rehabilitation	3
Supplemental Major Course (Choose 1- HIM 4230, LGL 4230, PHIL 3370)		3
General Elective		3
General Elective		4
	Hours	**13**
	Total Hours	**120**

Health Sciences - Pre-Medical Professions 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
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
	Hours	**16**
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
ENGL 1110	College Composition I	3
HHS 1020	Introduction to Health Sciences II	2
	Hours	**15**
Third Term		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
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
HHS 3100	Introduction to Social Determinants of Health	3
	Hours	**14**
Fourth Term		
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
PSY 1010	Principles Of Psychology	3
	Hours	**14**

Fifth Term		
CHEM 3510	Biochemistry I	3
HEAL 1800	Medical Terminology	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
PSC 1210	American National Government and Civics	3
Non-U.S. Diversity		3
	Hours	**17**
Sixth Term		
EXSC 2580	Human Pathophysiology For Health Care	3
HHS 4100	Foundations of Healthcare Delivery	3
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
COMM 1010 or COMM 2840 recommended		3
General Elective BIOL, EXSC, HEAL, PSY 2510 recommended		3
	Hours	**17**
Seventh Term		
HEAL 4700	Nutritional Science	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
MATH 2600	Introduction To Statistics	3
Supplemental Concentration Course- EXSC 3200, EXSC 3520/3530, EXSC 4540, EXSC 4640)		3-4
	Hours	**12-13**
Eighth Term		
Supplemental Major Course (Choose 1- HIM 4230, LGL 4230, PHIL 3370)		3
Humanities/Fine Arts and U.S. Diversity		3
General Elective Upper level required		3
General Elective Upper level required		3
General Elective BIOL, EXSC, HEAL, PSY 2510 recommended		3
	Hours	**15**
	Total Hours	**120-121**

Health Sciences - Pre-Physician Assistant 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
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
	Hours	**16**
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
ENGL 1110	College Composition I	3
HHS 1020	Introduction to Health Sciences II	2
	Hours	**15**
Third Term		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
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
HHS 3100	Introduction to Social Determinants of Health	3
	Hours	**14**
Fourth Term		
BIOL 3010	Molecular Genetics	3
COUN 3000	Cultural Competence in Health and Human Services Professions	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
HEAL 1800	Medical Terminology	3
PSY 1010	Principles Of Psychology	3
	Hours	**16**
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
PSC 1210	American National Government and Civics	3
	Hours	**14**
Sixth Term		
BIOL 4030	Microbiology	3
BIOL 4040	Microbiology Laboratory	1
EXSC 2580	Human Pathophysiology For Health Care	3
HHS 4100	Foundations of Healthcare Delivery	3
COMM 1010 or COMM 2840 recommended		3
General Elective EXSC or HEAL recommended		3
	Hours	**16**
Seventh Term		
HEAL 4700	Nutritional Science	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
MATH 2600	Introduction To Statistics	3
Supplemental Concentration Course (Choose 1- EXSC 3200, EXSC 3520/3530, EXSC 4540, EXSC 4640)		3-4

General Elective EXSC or HEAL recommended	3
Hours	**15-16**
Eighth Term	
Supplemental Major Course (Choose 1- HIM 4230, LGL 4230, PHIL 3370)	3
Humanities/Fine Arts and U.S. Diversity	3
Non-U.S. Diversity	3
General Elective	5
Hours	**14**
Total Hours	**120-121**

- Health Sciences - Human Performance & Fitness Promotion Concentration, BS (p. 107)
- Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS (p. 108)
- Health Sciences - Pre-Medical Professions Concentration, BS (p. 108)
- Health Sciences - Pre-Physician Assistant Concentration, BS (p. 108)

Health Sciences - Human Performance & Fitness Promotion Concentration, BS Learning Outcomes

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

Health Sciences - Pre-Athletic Training and Pre-Physical Therapy Concentration, BS Learning Outcomes

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

Health Sciences - Pre-Medical Professions Concentration, BS Learning Outcomes

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

Health Sciences - Pre-Physician Assistant Concentration, BS Learning Outcomes

- Demonstrate foundational knowledge and skills for careers in health-related/healthcare professions, including but not limited to physical, biological and social sciences, and anatomy and physiology
- Identify and describe characteristics of contemporary high-quality healthcare professionals and organizations, including but not limited to provision of patient/person-centered care and utilization

of evidence-based practice, continuous quality improvement, interprofessional teamwork, and contemporary healthcare technologies
- Identify and describe the ethical responsibilities of health-related/healthcare professionals and the legal, regulatory, and administrative aspects that relate to those careers
- Identify and describe the environmental, social and structural factors that influence individual and community health, as well as how health-related/healthcare professionals can address these factors
- Demonstrate key professional behaviors essential for success in graduate programs and/or health-related/healthcare careers, including professional appearance and attitude, ethical conduct, and effective written and oral communication
- Identify and describe potential careers for a health sciences degree graduate
- Demonstrate readiness for graduate-level health professions programs or employment in health-related/healthcare field

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;
- 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.

Code	Title	Hours
General Education Core Courses Required		
ENGL 2950	Technical Writing	3
or ENGL 2960	Professional and Business Writing	
MATH 2640	Statistics for Applied Science	3
or MATH 2600	Introduction To Statistics	
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
EXSC 1560	Fundamentals of Anatomy and Physiology	3
EEES 1130	Down To Earth: Environmental Science	3
Additional General Education courses to meet university core requirements		
Public Health Core Required Courses (36cr):		
HEAL 2700	Introduction to Public Health	3
HEAL 2750	Introduction to Epidemiology	3
HEAL 2940	Public Health Internship I	3
HEAL 3000	Global Health	3
HHS 3100	Introduction to Social Determinants of Health	3
HEAL 3500	Environmental Health	3
HEAL 3600	Prevention And Control Of Disease	3
HEAL 4200	Planning, Implementing, and Evaluating Public Health Programs	3
PUBH 4620	Introduction to Health Policy and Health Systems	3
HEAL 4800	Public Health Research And Statistics	3
HEAL 4940	Public Health Internship II	6
Public Health Support Courses (Select 24cr from the list)		24
HEAL 2100	Living Well	
HEAL 2500	Personal Health	
HEAL 2600	Mental Health	
HEAL 2800	Principles Of Nutrition	
HEAL 3200	Consumer Health	
HEAL 3300	Drug Awareness	
PUBH 3650	Zombie Apocalypse 101: Outbreak Response	
HEAL 3700	Foundations Of Human Sexuality	
HEAL 4100	Health Behavior	
PUBH 4150	Health Coaching	
PUBH 4420	Social Marketing in Health	
HEAL 4500	Women's Health Care	
HEAL 4700	Nutritional Science	
PUBH 4700	Risk Assessment	

DATA 2500	Data Science I	
DATA 4500	Data Science II	
HHS 3600	Foundations of Evidence-Based Practice in Health Science	
HIM 2260	Legal Issues in HIM	
HIM 4230	Compliance and Ethical Issues	
HIM 4500	Health Informatics & Information Management	
COMM 3760	Health Communication	
EEES 2150	Biodiversity	
EEES 2160	Biodiversity Laboratory	
EEES 3050	General Ecology	
EEES 3060	General Ecology Laboratory	
EXSC 2590	Microbiology and Infectious Diseases	
EXSC 3240	Concepts of Exercise Fitness and Health Strategies	
Take additional credits to meet university requirements of 120cr		47
Total Hours		**120**

- Bachelor of Science in Public Health (p. 145)
- Bachelor of Science in Public Health: Pre-Medical track (p. 145)

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
HHS 1000	Health And Human Services/College Orientation	1
EEES 1130	Down To Earth: Environmental Science	3
HEAL 2700	Introduction to Public Health	3
Fine Arts / Humanities Elective		3
Social Sciences Elective		3
	Hours	**16**
Second Term		
MATH 2640	Statistics for Applied Science	3
ENGL 2960	Professional and Business Writing	3
HHS 3100	Introduction to Social Determinants of Health	3
Diversity of Non-US class		3
Fine Arts / Humanities Elective		3
	Hours	**15**
Third Term		
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
EXSC 1560	Fundamentals of Anatomy and Physiology	3
HEAL 2750	Introduction to Epidemiology	3
HEAL 3300	Drug Awareness	3
Elective		3
Social Sciences Elective		3
	Hours	**16**
Fourth Term		
PUBH 3650	Zombie Apocalypse 101: Outbreak Response	3
HEAL 2940	Public Health Internship I	3
Diversity of US course		3
General Education Core Elective		3
Elective		3
	Hours	**15**
Fifth Term		
HEAL 2800	Principles Of Nutrition	3
HEAL 3000	Global Health	3
HEAL 3600	Prevention And Control Of Disease	3
EXSC 2590	Microbiology and Infectious Diseases	3
General Core Elective		5
	Hours	**17**
Sixth Term		
PUBH 4420	Social Marketing in Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HEAL 3500	Environmental Health	3
Elective		5
	Hours	**14**
Seventh Term		
HEAL 3200	Consumer Health	3
EXSC 3240	Concepts of Exercise Fitness and Health Strategies	3
HEAL 4200	Planning, Implementing, and Evaluating Public Health Programs	3
Elective		6
	Hours	**15**
Eighth Term		
HEAL 4800	Public Health Research And Statistics	3
PUBH 4620	Introduction to Health Policy and Health Systems	3
HEAL 4940	Public Health Internship II	6
	Hours	**12**
	Total Hours	**120**

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 1230	General Chemistry I [1]	4
CHEM 1280	General Chemistry Lab I [1]	1
ENGL 1110	College Composition I	3
HHS 1000	Health And Human Services/College Orientation	1
	Hours	**14**
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 [1]	4
CHEM 1290	General Chemistry Lab II [1]	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Humanities Core		3
	Hours	**16**
Third Term		
CHEM 2410	Organic Chemistry I [1]	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors [1]	1
HEAL 2700	Introduction to Public Health	3
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
MATH 1340	College Algebra And Trigonometry [1]	5
	Hours	**16**
Fourth Term		
CHEM 2420	Organic Chemistry II [1]	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors [1]	1
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2470	Human Anatomy And Physiology II Lab	1
PSY 1010	Principles Of Psychology	3
COMM 2840	Interpersonal Communication	3
	Hours	**14**
Fifth Term		
CHEM 3510	Biochemistry I (FL)	3
HEAL 2750	Introduction to Epidemiology (FL)	3
PHYS 2070	General Physics I (FL) [1]	4
PHYS 2075	General Physics I - Lab (FL) [1]	1
HHS 3100	Introduction to Social Determinants of Health	3
	Hours	**14**
Sixth Term		
HEAL 3500	Environmental Health (SP)	3
HEAL 3600	Prevention And Control Of Disease	3
PHYS 2080	General Physics II (SP)	4
PHYS 2085	General Physics II - Lab	1
HEAL 3000	Global Health	3
SOC 1010	Introduction To Sociology	3
	Hours	**17**
Seventh Term		
HEAL 4200	Planning, Implementing, and Evaluating Public Health Programs (FL)	3
PUBH 4620	Introduction to Health Policy and Health Systems	3
US Diversity course		3
Non-US Diversity course		3
Elective Course		3
	Hours	**15**
Eighth Term		
HEAL 4940	Public Health Internship II	6
HEAL 4800	Public Health Research And Statistics	3
Elective Course		3
Elective Course		2
	Hours	**14**
	Total Hours	**120**

[1] A "C" or better is required in this course.

Courses noted with FL or SP are only offered in those semesters.

- PLO 1. Explain the history, philosophy, core functions, essential services, and major systems/actors of public health at local, national, and global levels.
- PLO 2. Apply foundational epidemiologic concepts (measures of disease frequency/association, study designs, causation, bias/confounding) to interpret population health patterns and evidence.
- PLO 3. Analyze global health challenges using a population-based lens, including social, economic, political, and environmental drivers of health inequities across countries.
- PLO 4. Evaluate how social determinants of health shape outcomes and inequities, and propose strategies that improve health equity across communities and populations.
- PLO 5. Assess major environmental exposures and hazards (biological, chemical, physical) and describe public health strategies for prevention and risk reduction.
- PLO 6. Describe mechanisms of disease transmission and prevention, and recommend evidence-based strategies for communicable and chronic disease control.
- PLO 7. Design public health programs using needs assessment, theory-informed planning, implementation strategies, and evaluation methods aligned with priority populations and outcomes.
- PLO 8. Explain how public health and healthcare systems operate, and evaluate how policies influence access, quality, costs, and population health outcomes.
- PLO 9. Use quantitative reasoning to interpret public health research, including basic statistical concepts, data interpretation, and translating results for decision-making.
- PLO 10. Demonstrate professional public health practice skills through supervised field experiences, including communication,

ethical conduct, teamwork, and delivering outputs that meet stakeholder needs.

Minor in Health Sciences

The Health Sciences minor prepares students with specialized knowledge and skills in the ever-evolving field of health sciences, enabling them to develop an understanding of the multifaceted factors that influence health. Through this program, students gain the expertise needed to navigate the complex landscape of health and healthcare, preparing them for diverse career opportunities in healthcare settings, research, nonprofit health organizations, and other related fields.

Completion of EXSC 2560/2460 and 2570/2470 or 2510/2520 and 2530/2540 will fulfill the EXSC 1560/1460 requirement for this minor.

Code	Title	Hours
Required Courses (15 hours)		
EXSC 1560	Fundamentals of Anatomy and Physiology	3
EXSC 1460	Fundamentals of Anatomy and Physiology Lab	1
HHS 1020	Introduction to Health Sciences II	2
HHS 3100	Introduction to Social Determinants of Health	3
HHS 3600	Foundations of Evidence-Based Practice in Health Science	3
HHS 4100	Foundations of Healthcare Delivery	3
Elective Courses		
(Select one of the following courses)		3
COUN 3000	Cultural Competence in Health and Human Services Professions	
HEAL 1800	Medical Terminology	
HEAL 4100	Health Behavior	
HIM 4230	Compliance and Ethical Issues	
LGL 4230	Health Care And The Law	
PHIL 3370	Medical Ethics	
Total Hours		**18**

- Define and provide examples of individual health, community health, and social determinants of health
- Discuss the theoretical frameworks used to better understand health disparities
- Describe the potential mechanisms through which social determinants of health can influence individual health across the life span and shape population patterns of morbidity and mortality
- Discuss interventions and promising approaches to achieving health equity based on an understanding social determinants of health
- Develop foundational knowledge and skills to prepare students to work in health sciences

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	Public Health Internship II	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.

School of Nursing

Kelly Phillips, Chair & Chief Nurse Administrator
James Oberlander, BSN Prelicensure Track Director
Colleen Quinlan, RN to BSN Track Director

The School of Nursing educates students to enter varied professional career paths as baccalaureate prepared nurses.

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.

Bachelor of Science in Nursing

- BSN Prelicensure Track (p. 150)
- RN to BSN Track (p. 152)

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 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 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 4510
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 4510
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 4510 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 4510 (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 4510 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 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 4510
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 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, 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 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 3020 with a minimum grade of C and NURS 3150 with a minimum grade of C and NURS 3030 with a minimum grade of C and NURS 3080 with a minimum grade of C
Corequisites: NURS 3220, NURS 3280, NURS 3540
Term Offered: Spring, Summer, Fall

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 4070, 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 4510 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 4070, 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 4070, 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

Bachelor of Science in Nursing (BSN)

School of Nursing students pursuing a prelicensure baccalaureate degree that leads to nursing licensure complete two years of course work in the prelicensure track. Following completion of prerequisite courses, the student applies for admission to the upper division. Nursing courses are offered on the Health Science Campus. 120 semester credit hours are required for graduation.

Admission to the upper division prelicensure track is competitive. A minimum cumulative GPA of 3.0 is required to be eligible to apply for the upper division. The School of Nursing requires a "C" or better in all coursework. A "C-"or lower is not acceptable. Therefore, all prerequisite, 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 prerequisite, UToledo Core Curriculum or upper division course. Consult your academic advisor before choosing this option.

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.

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; please check with the academic advisors.

Prelicensure BSN students 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

Students dismissed from the nursing program will receive a dismissal letter from the Associate Dean for Academic Affairs. Students may petition for readmission based on extenuating circumstances but are not guaranteed readmission.

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 [Elective]	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 including the UToledo Core Curriculum.

Students accepted into the School of Nursing should be academically prepared for placement 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. The degree program requires 120 credit hours with a minimum cumulative grade point average of 2.0.

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
	Hours	**14**
Second Term		
ENGL 2950	Technical Writing	3
HEAL 1800	Medical Terminology	3
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
Elective		2
Arts/Humanities Core		3
	Hours	**15**
Third Term		
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		3
	Hours	**16**
Fourth Term		
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	**15**
Fifth Term		
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
	Hours	**15**

Sixth Term		
NURS 3280	Advanced Fundamentals	3
NURS 3220	Medical-Surgical Nursing 1	5
NURS 3540	Pathopharmacology 2	3
NURS 4510	Population Health	4
	Hours	**15**
Seventh Term		
NURS 3310	Mental Health Nursing	4
NURS 3330	Pediatric Nursing	4
NURS 4630	Management of Care	2
NURS 3320	Medical-Surgical Nursing 2	5
	Hours	**15**
Eighth Term		
NURS 4070	Family Health Nursing	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
	Hours	**15**
	Total Hours	**120**

- 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 to BSN

Registered nurses who graduated from an associate degree or diploma nursing program with a 2.0 GPA and have an active, unrestricted, unencumbered U.S. RN license, in the state where they plan to complete clinical experience, may enroll in the School of Nursing to earn a baccalaureate degree.

Completion of 120 semester credits is required for graduation. Required nursing courses are online so computer, internet access, and computer literacy are essential.

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 are required in all university core and program prerequisites. A grade of "C" or higher must be achieved in all NURS courses.

A RN to BSN student will be dismissed from the nursing program if the student exceeds 8 academic years for program completion. A student dismissed from the nursing program will receive a dismissal letter from the Associate Dean for Academic Affairs. Students may petition for readmission based on extenuating circumstances but are not guaranteed readmission.

RN to 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
Total Hours		**30**

RN to BSN

UToledo Core requirements

English Composition I 3 credit hours
English Composition II 3 credit hours
Math 2600 Statistics 3 credit hours
[Prerequisite: 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 the University of Toledo is accredited by the Commission on Collegiate Nursing Education (http://www.ccneaccreditation.org).

Note: An additional 30 hours must be taken at the 3000-4000 level. These are included in the RN to BSN curriculum.

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
	Hours	**15**
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
	Hours	**12**
Third Term		
NURS 4520	Pathopharmacology for the Practicing RN	3
	Hours	**3**
	Total Hours	**30**

- 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.

Academic Performance Standards Upper Division Nursing

Academic Performance Standards

The School 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 School of Nursing occurs with a major violation of academic standards. See the Undergraduate Student Handbook for the Academic Misconduct policy.

Academic Progression

The School of Nursing adheres to the University of Toledo Academic Policies. A suspended student must submit an appeal in writing for readmission to the Associate Dean of Student Affairs in the College of Health and Human Services. 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 (https://www.utoledo.edu/policies/administration/humanresources/pdfs/3364-25-47%20Background%20check.pdf) will be conducted on all students accepted for admission to the School 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.

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 costs associated with these requirements. Documentation must be submitted at least 6 weeks before the start of the semester.

Plan of Study

Students must consult with the 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 prelicensure BSN nursing major are corequisite to one another and prerequisite 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 the academic advisor prior to taking any action.

RN to 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 academic advisor and the 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 Health and Human Services School 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.

Faculty

Department of Exercise & Rehabilitation Sciences

Jamal Bittar, 1996, Senior Lecturer, B.S., M.S., M.E., M.Ed., P.T.D., The University of Toledo

Lucinda Bouillon, 2014, Associate Professor, B.Ed., M.Ed., Ph.D., The University of Toledo, M.P.T, University of Findlay

Michael Dillon, 2012, Associate Lecturer and Assistant Dean, B.S., Central Michigan University; M.A., M.B.A., The University of Toledo

An Dinh, 2019, Assistant Professor, B.A., M.A., Calvin College; Ph.D., Ohio University

Elyce Ervin, 2000, Senior Lecturer, B.S., M.S., Youngstown State University

Lindsey Fresenko, 2024, Assistant Professor, B.S., Slippery Rock University; D.P.T., Youngstown State University; Ph.D., University of Kentucky

Kelly Gelske, 2009, Assistant Clinical Professor, B.S., O.T.D., The University of Toledo

Jennifer Glassman, 2007, Associate Professor, B.A., M.A., Ph.D., The University of Toledo

Jennifer Hale, 2022, Assistant Lecturer, B.S., M.A., The University of Toledo

Joseph Krugh, 2024, Assistant Professor, B.S., Bowling Green State University; D.Sc., Andrews University

Adrienne Lange, 2016, Clinical Program Supervisor, B.S., M.S., Bowling Green State University

Abraham Lee, 1999, Associate Professor, B.S., Kyungpook National University; M.S., Yonsei University; M.S., Northeastern Illinois University; Ph.D., Arizona State University; M.S., Texas Woman's University

Eric Longsdorf, 2001, Associate Professor and Chair, B.Ed., M.Ed., Ph.D., The University of Toledo

Nicole McKenzie, 2014, Associate Professor, B.S., The University of Toledo; M.H.A., Ohio University; Ph.D., The University of Toledo

Thomas McLoughlin, 2004, Associate Professor, B.S., Ithaca College; M.A., Adelphi University; Ph.D., The University of Toledo

Caroline Menezes, 2008, Professor, B.Sc., M.Sc., University of Madras; M.A., Ohio University; Ph.D., The Ohio State University

Alexia Metz, 2007, Professor, B.A. Eastern Michigan University, Ph.D. Northwestern University

Lauren Miller, 2019, Associate Lecturer, B.S., M.S., Bowling Green State University

Amanda Murray, 2016, Associate Professor, B.S., Bowling Green State University; D.P.T., Ph.D., The University of Toledo

Jennifer Peterson, 2020, Assistant Professor, B.S., Ohio University, M.S., Ph.D., The University of Toledo

Francis Pizza, 1998, Professor, B.Ed., The University of Toledo; M.A., Adelphi University; Ph.D., The University of Toledo

Laura Schmelzer, 2016, Associate Professor, B.A., Capital University; M.O.T., Chatham University; Ph.D., Nova Southeastern University

Tori Smith, 2007, Clinical Assistant Professor, B.S., Michigan State University; M.S., Duke University; D.P.T., Arcadia University

Nicole Stotz, 2015, Associate Professor, B.S., O.T.D., Ph.D., The University of Toledo

Christa Turley, 2011, Senior Lecturer, B.S., The Ohio State University; M.Ed., The University of Toledo

Kristen Williams, 2025, Associate Lecturer, B.S., Ph.D., The University of Toledo

Department of Human Services

Shing Yee Bay, 2025, Assistant Professor, B.Sc., University of Wisconsin - Eau Claire; M.A., University of Minnesota - Twin Cities; Ph.D., University of New Mexico

Wendy S. Cochrane, 2002, Professor, B.S., Miami University; M.A., The Ohio State University; Ed.S., Ph.D., University of South Florida

Holly Eichner, 2014, Senior Lecturer, B.Ed., M.Ed., Ph.D., The University of Toledo

John Laux, 2001, Professor and Interim Dean, B.A., Ambassador College; M.A., West Virginia University; Ph.D., The University of Akron

Susan Long, 2020, Associate Professor, B.A., M.A., Ph.D., The University of Toledo

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Department of Population Health

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Barry Scheuermann, 2003, Professor, B.A., Ph.D., University of Western Ontario

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School of Nursing

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College of Medicine and Life Sciences

Undergraduate Catalog 2026-2027

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 high-quality patient care and by conducting nationally recognized research.

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
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

- BS in Radiation Therapy (p. 157)
- BS in Neuroscience (https://catalog.utoledo.edulabel::/undergraduate/medicine-life-sciences/0/)

BS in Radiation Therapy

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, skills, and clinical competencies required to be a certified radiation therapist. The first two years consist of pre-specialization coursework offered on the Main Campus. The final two years include professional coursework on the Health Science Campus, practical laboratories and exercises in the Department of Radiation Oncology where the program is housed and radiation therapy equipment is located, and practical training in affiliated radiation therapy clinics. Students complete pre-specialization coursework in general education, foundational health sciences, anatomy and physiology with laboratory, human pathophysiology for healthcare, medical terminology, and an advanced course in medical ethics.

The curriculum 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.

To be eligible for program completion and conferral of the Bachelor of Science in Radiation Therapy degree, students must successfully meet the following requirements:

- Satisfactory completion of all professional track courses with a minimum grade of B- (2.7) or higher.
- Successful completion of all required clinical practicum experiences, including demonstration and documentation of competency in all procedures required by the American Registry of Radiologic Technologists (ARRT) Radiation Therapy competency requirements.
- Successful completion of the program Capstone Assessment with a minimum score of 84%.
- Successful completion of the comprehensive Program Final Examination with a minimum score of 84%.
- Compliance with all program policies, professional standards, and clinical requirements as outlined in the Radiation Therapy Student Handbook.

Upon successful completion of the program, graduates are eligible to take the ARRT national certification examination in Radiation Therapy.

A maximum of 15 students are accepted into each professional track cohort, for a total of 30 students in the professional track.

Admission

Pre-Professional Track (High School & Transfer Students)

- Minimum GPA if applying without test scores: 3.0.
- Minimum GPA and test scores if applying with test scores: 2.75-2.99 GPA and a 19 ACT or 1030 SAT score.
- Completion of required math placement testing. Information regarding the math placement test is located here: Math Placement Testing https://www.utoledo.edu/nsm/mathstats/placement/

Admission to the University as a pre-Radiation Therapy major does not guarantee admission into the limited-enrollment professional track of the program. Students must ***apply*** to our competitive admission process for acceptance into the professional track. The professional track consists of all RDON 3000 and 4000 level coursework, including laboratory and clinical education experiences.

Professional Track

Students must be accepted into the Radiation Therapy Professional Track prior to registration for RDON 3000- and 4000- level courses.

To qualify for consideration, applicants must complete the following:

1. Submit a Radiation Therapy Professional Track application
2. Maintain a minimum cumulative GPA of 2.75 on a 4.0 scale at the time of application

3. Successfully complete all prerequisite coursework by the end of the application semester
   *All prerequisite mathematics and science coursework must be completed within five (5) years of the professional track application deadline to be considered for admission into the Radiation Therapy Program.
4. Be enrolled in and successfully complete RDON 1010 Introduction to Radiation Therapy at The University of Toledo during the application semester
5. Earn a minimum grade of B (84%) in the following prerequisite courses:

Code	Title	Hours
EXSC 2460	Human Anatomy And Physiology I Lab	1
EXSC 2470	Human Anatomy And Physiology II Lab	1
EXSC 2560	Anatomy and Physiology I	3
EXSC 2570	Human Anatomy and Physiol II	3
EXSC 2580	Human Pathophysiology For Health Care	3
HEAL 1800	Medical Terminology	3
MATH 1320	College Algebra	3
MATH 2600	Introduction To Statistics	3
PHYS 1750	Introduction To Physics	4

Courses completed using Pass/Fail grading will not be accepted for pre-professional track requirements requiring a grade of B or higher unless the official transcript reflects a letter grade equivalent to a B (84%) or higher.

6. Complete a minimum of 8 hours of observation/clinical experience in a radiation therapy department

Observation experiences are coordinated by Radiation Therapy Program Officials during the RDON 1010 Introduction to Radiation Therapy course.

Due to the sequenced and competency-based nature of the curriculum, all Radiation Therapy (RDON) professional coursework, including RDON 1010 Introduction to Radiation Therapy, must be completed through the University of Toledo Radiation Therapy Program. Transfer credit will not be accepted for professional Radiation Therapy coursework.

Professional Track Progression Requirements

- A minimum grade of B- (2.7) must be achieved in all professional track didactic and clinical courses to progress within the program.
- Students are permitted a maximum of two attempts to successfully complete a professional track course with the required minimum grade.
- Students must adhere to the prescribed professional track course and clinical rotation sequence.
- Failure to achieve the required minimum grade in a professional track course or withdrawal from a professional track course will result in removal from the professional track course sequence and withdrawal from all professional track courses within that semester.
  - Reapplication for reentry is required based upon course sequencing and course availability.
  - Reentry consideration occurs when the required course sequence is offered again.
  - Professional track courses are offered once per academic year.
- Students must successfully complete all required competency evaluations and clinical performance requirements.
- Students must maintain compliance with all clinical, health, safety, and professional requirements throughout enrollment.

Failure to meet progression requirements may result in Professional Probation, delay in progression, failure of a course, clinical removal, or dismissal from the program.

Eligibility Requirements

Applicants must:

- Submit a completed application
- Submit a résumé and cover letter describing the applicant's professional goals and motivation for pursuing the profession
- Complete required observation experience
- Submit required observation documentation
- Complete a minimum of 25 hours of documented paid or volunteer patient care experience
- Meet all admission and compliance requirements
- Participate in the required admissions interview process

All eligibility requirements and application materials must be completed prior to participation in the admissions interview process conducted at the end of the spring semester.

Compliance Requirements

As part of eligibility for acceptance into the professional track, students are required to participate in observation experiences conducted during the second half of RDON 1010 – Introduction to Radiation Therapy. Participation in these observation experiences is contingent upon completion of the following compliance requirements by week 8 of RDON 1010. Compliance requirements must be maintained throughout enrollment in the professional track and clinical education experiences.

- BCI & FBI background check
- Minimum 10-panel drug screen
- Clinic Clearance Form completed by a licensed healthcare provider
- Annual tuberculosis screening
- Hepatitis B vaccination series
- Positive antibody titers/immunization documentation for Rubella, Rubeola, Mumps, and Varicella
- Tdap vaccination within the last 10 years
- Annual influenza vaccination
- COVID vaccination is highly recommended
- Proof of health insurance
  - Health insurance must be maintained throughout enrollment in the professional track. Students utilizing independent health insurance coverage may be required to complete the University waiver process. Health Insurance

Competitive Selection Factors

Eligible applicants are competitively evaluated based upon:

- Higher education cumulative GPA
- Prerequisite course performance
- Observation Clinical Preceptor evaluation score
- Interview score

Requirements

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
SOC 1010	Introduction To Sociology	3
MATH 2600	Introduction To Statistics	3
PHIL 3370	Medical Ethics	3
RDON 1010	Introduction to Radiation Therapy	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	Radiation Therapy Practices Lab	1
RDON 3210	Clinical Practicum I	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 II	7
RDON 4160	Radiation Biology for Radiation Therapy	3
RDON 4110	Dosimetry	3
RDON 4120	Dosimetry Lab	1
RDON 4130	Clinical Practicum III	6
RDON 4200	Quality Assurance & Operational Issues	3
RDON 4210	Senior Seminar in Radiation Therapy	3
RDON 4220	Clinical Practicum IV	6
PSC 1210	American National Government and Civics (Civics Requirement)	3
or CLT 2000	The American Constitutional Tradition	
U.S. Diversity		3
Non-U.S. Diversity		3
Total Hours		**120**

First Term		Hours
ENGL 1110	College Composition I	3
MATH 1320	College Algebra	3
EXSC 2560	Anatomy and Physiology I (Natural Science Core)	3
EXSC 2460	Human Anatomy And Physiology I Lab (Natural Science Core)	1
PSY 1010	Principles Of Psychology (Social Science Core)	3
U.S. Diversity/Core Elective		3
	Hours	**16**
Second Term		
ENGL 2950	Technical Writing	3
EXSC 2570	Human Anatomy and Physiol II ( )	3
EXSC 2470	Human Anatomy And Physiology II Lab ( )	1
PHIL 1020	Critical Thinking (Arts and Humanities Core)	3
COMM 2840	Interpersonal Communication (Arts and Humanities Core)	3
Non-U.S. Diversity		3
	Hours	**16**
Third Term		
EXSC 2580	Human Pathophysiology For Health Care	3
PHYS 1750	Introduction To Physics (Natural Science Core)	4
HEAL 3800	Death And Dying	3
SOC 1010	Introduction To Sociology (Social Sciences Core)	3
	Hours	**13**
Fourth Term		
RDON 1010	Introduction to Radiation Therapy	3
HEAL 1800	Medical Terminology	3
MATH 2600	Introduction To Statistics	3
PHIL 3370	Medical Ethics	3
PSC 1210 or CLT 2000	American National Government and Civics (Civics Requirement) or The American Constitutional Tradition	3
	Hours	**15**
Fifth Term		
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	Radiation Therapy Practices Lab	1
	Hours	**16**

Sixth Term		
RDON 3200	Radiation Therapy Physics II	3
RDON 3210	Clinical Practicum I	5
RDON 3230	Principles & Practice of Radiation Therapy II	3
RDON 3240	Principles & Practices of Radiation Therapy II Lab	1
	Hours	**12**
Seventh Term		
RDON 3300	Clinical Practicum II	7
	Hours	**7**
Eighth Term		
RDON 4160	Radiation Biology for Radiation Therapy	3
RDON 4110	Dosimetry	3
RDON 4120	Dosimetry Lab	1
RDON 4130	Clinical Practicum III	6
	Hours	**13**
Ninth Term		
RDON 4200	Quality Assurance & Operational Issues	3
RDON 4210	Senior Seminar in Radiation Therapy	3
RDON 4220	Clinical Practicum IV	6
	Hours	**12**
	Total Hours	**120**

- 1. Our students will demonstrate proficient communication skills. Learning outcomes: • Students will demonstrate effective oral communication skills. • Students will exhibit effective written communication skills.
- 2. Our students will demonstrate critical thinking. Learning outcomes: • Students will analyze radiation therapy cases. • Students will analyze and provide a solution for a simulation/treatment scenario.
- 3. Our students will demonstrate professionalism. Learning outcomes: • Students will demonstrate professionalism at clinic • Students will produce a plan for their professional career development.
- 4. Our students will be clinically competent entry level Radiation Therapists. Learning outcome: • Students will demonstrate correct image alignment • Students will demonstrate proficiency in simulation

RDON 1010 Introduction to Radiation Therapy
[3 credit hours]
The course provides an overview of the basics of radiation therapy and the practitioner's role in health care delivery. Principles, practices and policies of health care organizations will be discussed, as well as safety concerns and the professional responsibilities of the radiation therapist. The course also describes the inter-relatedness of standards of care, laws, ethical standards and professional competence. The student must receive a minimum of a B in this course to be eligible to apply to the Radiation Therapy Professional track.
Term Offered: Spring

RDON 3100 Radiation Therapy Physics I
[3 credit hours]
Radiation Physics I content establishes a basic knowledge of physics as it applies to the radiation therapy clinical setting. Covered in this course are the fundamental physical units and measurements, basic principles, atomic structure, and types of radiation. Also presented are the fundamentals of radiation generating equipment, x-ray production and x-ray interactions with matter. The student must receive a B- or better in this course to progress in the program.
Prerequisites: RDON 1010 with a minimum grade of B
Term Offered: Fall

RDON 3110 Sectional Anatomy
[3 credit hours]
The Sectional Anatomy course introduces students to medical imaging methods currently used in the field of radiation therapy. Students will identify normal anatomical structures via a variety of imaging formats. Basic anatomical relationships will be compared using topographical and cross-sectional images. The student must receive a B- or better in this course to progress in the program.
Prerequisites: RDON 1010 with a minimum grade of B
Corequisites: RDON 3150
Term Offered: Fall

RDON 3120 Patient Care Management
[3 credit hours]
This course provides radiation therapy students with the foundational concepts in the care process of patients during the course of radiation therapy treatment delivery. Both the physical and psychological needs of patients will be explored. The course will address both routine and emergency care procedures. The student must receive a minimum grade of a B- to progress in the program.
Prerequisites: RDON 1010 with a minimum grade of B
Corequisites: RDON 3150
Term Offered: Fall

RDON 3130 Principles & Practice of Radiation Therapy I
[3 credit hours]
This course provides an overview of cancer and the specialty of radiation therapy. Historic and current aspects of cancer treatment are covered, along with the roles and responsibilities of the radiation therapist. The equipment used in radiation therapy including historic, current and emerging are examined. In addition, treatment prescription, techniques and delivery are discussed. Explores the management of neoplastic disease to include respiratory, central nervous, endocrine, lymphoreticular, hematopoietic, musculoskeletal, benign conditions and HIV related neoplasms. The epidemiology, etiology, detection, diagnosis, treatment and prognosis of neoplastic disease are evaluated in relation to histology, anatomical site and patterns of spread. Examines the role of Radiation Therapy in palliative care. The radiation therapist's responsibility in the management of neoplastic disease will be examined and linked to specific professional skills within their scope. The student must receive a B- or better in this course to proceed in the professional track of the program.
Prerequisites: RDON 1010 with a minimum grade of B
Corequisites: RDON 3150
Term Offered: Fall

RDON 3140 Imaging and Processing in Radiation Oncology
[3 credit hours]
This course covers the factors that affect production and recording of radiographic images for patient simulation, treatment planning and treatment verification, with an emphasis on radiation oncology imaging equipment and related devices. The student must receive a B- or better in this course to progress in the program.
Prerequisites: RDON 1010 with a minimum grade of B
Corequisites: RDON 3150
Term Offered: Fall

RDON 3150 Radiation Therapy Practices Lab
[1 credit hour]
This course is the lab component to accompany RDON 3110 Sectional Anatomy, RDON 3120 Patient Care Management, RDON 3130 Principles & Practice of Radiation Therapy I and RDON 3140 Imaging and Processing in Radiation Oncology. The course provides students the opportunity to demonstrate radiation safety practices, leveling skills, patient transfers, taking vital signs, patient communication/education and assisting with patient personal care. Additionally, students will identify anatomy on images and evaluate images. The student must receive a B- or better in this course to progress in the program.
Prerequisites: RDON 1010 with a minimum grade of B
Corequisites: RDON 3110, RDON 3120, RDON 3130, RDON 3140
Term Offered: Fall

RDON 3200 Radiation Therapy Physics II
[3 credit hours]
The Radiation Therapy Physics II course reviews and expands basic physics concepts and theories to include content specific to radiation therapy. Detailed analysis of the structure of matter, properties of radiation, nuclear transformations, x-ray production and interactions of ionizing radiation are included. Also presented are treatment units used in external radiation therapy, quality evaluation of ionizing radiation, absorbed dose measurement, dose distribution and scatter analysis. Radiation protection is also covered in this course. The content presents the basic principles of radiation protection and safety for the radiation therapist. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies and health care organizations are included, as well as the specific responsibilities of radiation therapists. The student must complete this course with a B- or better to progress in the program.
Prerequisites: RDON 3100 with a minimum grade of B-
Term Offered: Spring

RDON 3210 Clinical Practicum I
[5 credit hours]
This course is the first in a series of four clinical practice courses. The clinical practicum courses are designed to provide sequential development of patient care and procedural information specific to radiation therapy. Through structured sequential assignments in clinical facilities, radiation therapy students are introduced to team practice, patient-centered clinical practice and professional development The student must receive a minimum of a B- in order to progress in the program.
Prerequisites: RDON 3110 with a minimum grade of B- and RDON 3120 with a minimum grade of B- and RDON 3130 with a minimum grade of B- and RDON 3140 with a minimum grade of B- and RDON 3150 with a minimum grade of B-
Term Offered: Spring

RDON 3230 Principles & Practice of Radiation Therapy II
[3 credit hours]
This course is a continuation of RDON 3130 Principles & Practice I. It provides an overview of cancer and the specialty of radiation therapy. Historic and current aspects of cancer treatment are covered, along with the roles and responsibilities of the radiation therapist. In addition, treatment prescription, techniques and delivery are discussed. Examines the management of neoplastic disease to include Genitourinary, Reproductive, Gastrointestinal, Head & Neck, Breast, and Pediatric neoplasms. The epidemiology, etiology, detection, diagnosis, treatment and prognosis of neoplastic disease are evaluated in relation to histology, anatomical site and patterns of spread. The radiation therapist's responsibility in the management of neoplastic disease will be examined and linked to specific professional skills within their scope. Must receive a B- or better in the course to progress in the Radiation Therapy program.
Prerequisites: RDON 3130 with a minimum grade of B-
Corequisites: RDON 3240
Term Offered: Spring

RDON 3240 Principles & Practices of Radiation Therapy II Lab
[1 credit hour]
This course is the lab component to accompany RDON 3230 Principles & Practice of Radiation Therapy II. The course provides students the opportunity to demonstrate radiation safety practices, leveling skills, patient transfers, patient communication/education. Students will identify anatomy on image and evaluate images. Additionally, students will develop a simulation plan. The student must receive a B- or better in this course to progress in the program.
Corequisites: RDON 3230
Term Offered: Spring

RDON 3300 Clinical Practicum II
[7 credit hours]
RDON 3300 is the second in a series of clinical practice courses. During this course the student is to continue and build upon the skills learned in Introduction to Clinical Practicum. The student is expected to have progressed from observation to a participatory role in the simulation and treatment of the patients. Additionally, the student will begin to participate in quality assurance. The clinical practicum courses are designed to provide sequential development of patient care and procedural information specific to radiation therapy. Through structured sequential assignments in clinical facilities, radiation therapy students are introduced to team practice, patient-centered clinical practice and professional development. Students must complete all RDON professional track courses with a B- or better to progress in the program.
Prerequisites: RDON 3210 with a minimum grade of B-
Term Offered: Summer

RDON 4110 Dosimetry
[3 credit hours]
The Dosimetry course content explains factors that influence clinical planning of patient treatment. This includes isodose descriptions, patient contouring, radiobiologic considerations, dosimetric calculations, compensation and clinical application of treatment beams. Optimal treatment planning is emphasized, and particle beams, stereotactic and emerging technologies are presented. The student must receive a B- or better in this course in order to progress in the program.
Prerequisites: RDON 3200 with a minimum grade of B-
Term Offered: Fall

RDON 4120 Dosimetry Lab
[1 credit hour]
This lab course should be taken in parallel to RDON 4110 – Dosimetry. In this lab we will learn the basics of treatment planning, from contouring to calculating isodose distributions. The Dosimetry Lab course content consists of hands-on practical exercises in the use of a commercial treatment planning system to design a treatment plan for a patient. Exercises will include the basic use of treatment planning systems, contouring and elements of plan design. The student must receive a B- or better in this course in order to progress in the program.
Corequisites: RDON 4110
Term Offered: Fall

RDON 4130 Clinical Practicum III
[6 credit hours]
This course is the third in a series of clinical practice courses. In Clinical Practicum II the student continues to utilize and build upon the skills learned in the previous clinical practice course. The student is to demonstrate active participation in the simulation and treatment of the Radiation Therapy patient. The student will expand their knowledge of Radiation Therapy by researching and observing emerging technologies. Additionally, the student will take an active role in Quality Assurance procedures. The clinical practicum courses are designed to provide sequential development of patient care and procedural information specific to radiation therapy. Through structured sequential assignments in clinical facilities, radiation therapy students are introduced to team practice, patient-centered clinical practice and professional development. All professional Track Radiation Therapy courses require a minimum of a B- in order to progress in the program
Prerequisites: RDON 3300 with a minimum grade of B-
Term Offered: Fall

RDON 4160 Radiation Biology for Radiation Therapy
[3 credit hours]
A series of introductory lectures on radiation biology with emphasis on the effects of radiation on cells and cellular components, tissues, and organisms. Dose-response relationships, dose-effect modifiers, and considerations applicable to radiation therapy treatments are among covered topics.
Prerequisites: RDON 3230 with a minimum grade of B-
Term Offered: Fall

RDON 4200 Quality Assurance & Operational Issues
[3 credit hours]
Quality management, quality assurance, safety and operations content describe the development of a culture of safety through quality control and assurance checks. This process includes the clinical aspects of patient care, medical records, treatment delivery, localization equipment and treatment planning equipment. The role of the various radiation therapy team members in quality management will be discussed as well as the legal and regulatory implications for maintaining optimal patient care. Accreditation agencies and the radiation therapist's role in the accreditation process will also be covered. The student must receive a B- or better in this course in order to progress in the program.
Prerequisites: RDON 4110 with a minimum grade of B-
Term Offered: Spring

RDON 4210 Senior Seminar in Radiation Therapy
[3 credit hours]
This is the didactic capstone course for the program. This purpose of this course is to provide students the opportunity to express their knowledge of the principles of radiation therapy. The student will review radiation therapy cases and present the information in research papers and presentations. The second focus of the course is to prepare the student to demonstrate their cumulative knowledge of the program material. The student must receive a minimum grade of a B- on the Program Final and pass the course with a minimum grade of B- or better to meet graduation requirements.
Prerequisites: RDON 4110 with a minimum grade of B-
Term Offered: Spring

RDON 4220 Clinical Practicum IV
[6 credit hours]
This course is the final in a series of clinical practice courses. In Clinical Practicum III the student is expected to continue utilizing and expanding upon the skills attained in the previous three clinical practicum courses. By the end of Clinical Practicum III, the student is to demonstrate competency of the skills required of an entry level Radiation Therapist. The clinical practicum courses are designed to provide sequential development of patient care and procedural information specific to radiation therapy. Through structured sequential assignments in clinical facilities, radiation therapy students are introduced to team practice, patient-centered clinical practice and professional development. The student must receive a minimum grade of a B- on the Clinical Capstone Assessment. Additionally, the student must pass the course with a minimum grade of a B-
Prerequisites: RDON 4130 with a minimum grade of B-
Term Offered: Spring

College of Natural Sciences and Mathematics

UNDERGRADUATE CATALOG 2026-2027

Wolfe Hall, Room 2246
419.530.7840

Mission Statement

The College of Natural Sciences and Mathematics improves 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, the College prepares students for rich and rewarding careers in an increasingly complex and changing world.

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Degrees/Programs Offered

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- Department of Environmental Sciences (p. 201)
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- Materials Science Certificate (p. 171)
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  - 3+3 Law Admission Program (p. 173)

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 with a ACS-Certified Concentration, Bachelor of Science in Chemistry with a Materials Chemistry Concentration, and the Bachelor of Science in Biochemistry meet certification standards by the American Chemical Society (ASC).

Admission Policies

New first-year students:

2.75 GPA or a 2.0-2.74 GPA and a 21 ACT/1060 SAT or higher.

Students not meeting these requirements will be admitted into UToledo's Exploratory Studies program in University College.

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 Natural Sciences and Mathematics advisor (https://www.utoledo.edu/offices/advising/nsm/) 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

Depending on the specific degree, no more than 90-94 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 your academic 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 Adult and Transfer Admission 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 Adult and Transfer Admission 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 discipline within the College of Natural Sciences and Mathematics (NSM) by completing the requirements of both degrees. Students completing a second degree must be sure that at least 12 credit hours of the second-degree requirements are unique to that degree, and are not being used to satisfy requirements in the first degree. 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 discipline 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, with at least 12 credit hours of the second-degree requirements unique to that degree, and not having been used to satisfy requirements in the first degree. 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 discipline by completing the requirements of both majors as specified for the same degree program (BA **or** BS). Students completing a second major must be sure that at least 12 credit hours of the second-major requirements are unique to that major, and are not being used to satisfy requirements in the first major. 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, provided that at least 12 credit hours of the second-degree requirements are unique to that degree, and not being used to satisfy requirements in the first degree. 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, with at least 12 credit hours of the second-degree requirements unique to that degree, and not having been used to satisfy requirements in the first 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 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 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 two consecutive semesters (excluding summer) absence must comply with existing college requirements at the time of readmission.

Academic Policies

Refer to **UToledo Policy website (http://www.utoledo.edu/policies/)** (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. Students are advised by academic advisors through the Office of Academic Advising. See the Office of Academic Advising web page for more information. (https://www.utoledo.edu/offices/advising/).

Advisors:

- 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 Mentors/Advisors

Students with declared majors and/or minors are advised by departmental mentors/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 faculty mentors/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 two consecutive semesters (excluding summer) 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 should email the UToledo Academic Advising Center (advising@utoledo.edu).

Sequence of Courses

There is no single prescribed sequence of courses, except that all first-year students should take NSM 1000, NSM 1500, 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/3364-71-07-1%20Repeating%20a%20course%20and%20calculating%20GPA%20procedure.pdf) and procedures (https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-07-1%20Repeating%20a%20course%20and%20calculating%20GPA%20procedure.pdf) 3364-71-07.01. (https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-07-1%20Repeating%20a%20course%20and%20calculating%20GPA%20procedure.pdf) Students should check with their advisor 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 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 must file the appeal no later than the last day of classes of the semester (including summer) 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: https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-04%20Academic%20dishonesty.pdf and 3364-71-04.1 https://www.utoledo.edu/policies/academic/undergraduate/pdfs/3364-71-04-1%20Academic%20dishonesty%20procedure.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 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) 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 Pass/No Credit date for the part of term. Grades of D- or better will be changed to PS, and grades of 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. 163) 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, any minors 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%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=HBvKVxBAGQC5jHyDdy2wRVfzqIsqkyKiTFqeodJ61UQ%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, multicultural studies, and American civic literacy 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
1. Orientation		
NSM 1000	Foundations of Academic Success for Science and Math Majors [1]	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
2. Writing Across the Curriculum (WAC) Requirement		
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. [2]		2-4

[1] All new first-year students are required to take NSM 1000 and NSM 1500. The courses are optional for transfer students.

[2] Students must pass a minimum of one writing intensive course as specifide by the program or approved by their advisor. Many courses will require completion of Composition I and II as pre-requisites.

G. Experiential learning

Students who initially enroll in a College of Natural Sciences and Mathematics undergraduate degree program of study in Fall of 2026 or later must actively participate in an approved experiential learning activity. Specific courses, co-curricular or other extended activities that meet this requirement can be approved by the program of study chair or program advisors.

H. 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. . Students completing a second major must be sure that at least 12 credit hours of the second-major requirements are unique to that degree, and are not being used to satisfy requirements in the first major. Work in the second major may be accepted as fulfilling the related course requirement upon the approval of the advisors in both departments. See section on "Earning a Second Degree (p. 164)" 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. 175) and Interdisciplinary Science (p. 170). A student completing a departmental major and a second major in an interdisciplinary or interdepartmental major must be sure that at least 12 credit hours of the second-major requirements are unique to that major, and are not being used to satisfy requirements in the first major. See the complete list of interdisciplinary majors under "Degrees Offered" in the College of Natural Sciences and Mathematics section of this catalog.

3. Related courses

- Students in some majors also must complete courses in related fields that provide additional breadth or depth in the discipline. 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 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 advisor. 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 9 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 from one 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 from one 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 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 UToledo Advising Center 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.

Below is a sample plan of study. Consult with your Interdisciplinary Science advisor and degree audit for your program requirements.

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
ENGL 1110	College Composition I	3
Natural Science Core		3
Social Science Core		3
Natural Sciences Core (Lab)		1
Mathematics Core course [1]		3
	Hours	**14**
Second Term		
NSM 1500	Building a Career in Science and Math	1
ENGL 1130 or ENGL 2950	College Composition II: Academic Disciplines And Discourse or Technical Writing	3
Mathematics course [1]		3
Core Natural Science		3
Core Social Science		3
Arts/Humanities Core		3
	Hours	**16**
Third Term		
NSM 2000	Professional Career Preparation in Math and Science	1
Arts/Humanities Core		3
NSM Science Elective		3
Non-US Diversity		3
Diversity of US		3
General Studies Core Area		3
	Hours	**16**
Fourth Term		
General Studies Core Area		6
General Studies Cognate		6
NSM Science Elective		3
	Hours	**15**

Fifth Term	
General Studies Core Area	6
General Studies Cognate	6
NSM Science Elective	3
Hours	**15**
Sixth Term	
Arts/Humanities Core	3
General Studies Core Area	6
General Studies Cognate	6
Hours	**15**
Seventh Term	
General Studies Core Area	6
General Studies Cognate	6
Elective	2
Hours	**14**
Eighth Term	
General Studies WAC class	3
Elective	12
Hours	**15**
Total Hours	**120**

[1] 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

The Materials Science Undergraduate Certificate is designed for students in STEM fields to gain specialized knowledge in materials science, including an understanding of material structure, defects, diffusion, equilibria, phase transformations, and growth and implications for classes of materials, materials characterization or applications. The certificate is a stackable program for various undergraduate majors, including chemistry, biochemistry, chemical and bioengineering, physics and other College of Natural Sciences and Mathematics majors.

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	
Total Hours		**14-16**

No classes used to satisfy the requirements of the Certificate in Materials Science may be taken P/NC.

- 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.

Pre-Medical Studies Certificate

The Pre-Medical Studies Certificate comprises a set of courses that have been identified as providing the knowledge that is critical for success on the MCAT and also identified as required by most medical schools for admission. Students who complete the certificate should be well prepared to successfully compete for admission to medical schools, and the certificate provides evidence that the student has successfully completed the foundational pre-medical courses. This certificate is especially useful for post-baccalaureate students who have an existing BS or BA degree and are returning to the University to complete pre-medical requirements prior to applying to medical school.

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	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
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
or CHEM 2480	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis	
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
or CHEM 2490	Organic Chemistry Laboratory II for Majors: Synthesis and Identification	
CHEM 3510	Biochemistry I	3
Take one of the following sets:		5
PHYS 2070 & PHYS 2075	General Physics I and General Physics I - Lab	
PHYS 2130 & PHYS 2135	Physics For Science And Engineering Majors I and Physics for Science and Engineering Majors I - Lab	
Take one of the following set:		5
PHYS 2080 & PHYS 2085	General Physics II and General Physics II - Lab	
PHYS 2140 & PHYS 2145	Physics For Science And Engineering Majors II and Physics for Science and Engineering Majors II - Lab	
MATH 1750	Calculus For The Life Sciences With Applications I	4
or MATH 1850	Single Variable Calculus I	
MATH 2600	Introduction To Statistics	3
PSY 1010	Principles Of Psychology	3
SOC 1010	Introduction To Sociology	3
Total Hours		**54**

- Students will be able to define and explain how biomolecules have unique properties that determine how they contribute to the structure and function of cells and how they participate in the processes necessary to maintain life, including the genetic control of heritable information between generations, and the principles of bioenergetics and energy metabolism.
- Students will be able to define and explain how organized assemblies of molecules, cells, and organs interact to carry out the functions of living organisms, including cell division, differentiation and specialization, organismal physiology
- Students will be able to define and explain the physiological processes through which multicellular organisms sense the internal and external environment, and through integrated functioning, maintain a stable internal environment within an ever-changing external environment, including the structure and integrative functions of the main organ systems, and the nervous and endocrine coordination of these organ systems.
- Students will be able to define and explain how living organisms transport materials, sense their environment, process signals, and respond to changes in terms of chemical and physical properties, including translational motion, forces, work, energy, and equilibria, electrochemistry and electrical circuits, how light and sound interact with matter, of fluids as applied to the circulatory system, gas movement and gas exchange, and atomic structure and chemical behavior.
- Students will be able to define and explain the principles that govern chemical interactions and reactions that form the basis of the molecular interactions and dynamics of living systems, including the unique properties of water and its solutions, the nature of intermolecular interactions, structure, function, and reactivity of biologically relevant molecules, chemical thermodynamics and kinetics, and separation and purification methods.
- Students will be able to define and explain how biological, psychological, and sociocultural factors influence the ways that individuals perceive, think about, and react to the world.
- Students will be able to define and explain how biological, psychological, and sociocultural factors influence behavior and behavioral change including individual and social influences on human behavior, attitude and behavior change.
- Students will be able to define and explain the psychological, sociocultural, and biological factors that influence the way we think about ourselves and others, as well as how we interact with others, including self identity and social interactions.
- Students will be able to define and explain how cultural, social differences, social stratification and access to resources influence well-being, including the impacts of demography and social inequality on well-being.
- Students will be able to analyze and evaluate scientific explanations and predictions.
- Students will be able to analyze and evaluate the design and execution of research experiments including essential components of the experiment and ethical issues.
- Students will be able to interpret patterns in data presented in tables, figures, and graphs and explain the conclusions that can be supported by the data.

Semiconductors Certificate

The Semiconductors Undergraduate Certificate is designed for students in STEM fields to gain specialized knowledge in the electronic properties of semiconductors and their roles in devices, including experiential learning in a hands-on laboratory, research or industrial setting focusing on semiconductor materials and devices. The certificate is a stackable program for various undergraduate majors, including chemistry, engineering and bioengineering, physics and other College of Natural Sciences and Mathematics majors.

Required Courses

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 [1]	
PHYS 4630	Semiconductors 1	
Choose 3 Credits of Laboratory Intensive Work:		3
PHYS 4580	Molecular And Condensed Matter Laboratory [1]	
PHYS 4910	Research Problems-Physics And Astronomy	
PHYS 4940	Internship in Renewable Energy	
Total Hours		**13-14**

[1] ***PHYS 4580 may not count twice.**

No classes used to satisfy the requirements of the Semiconductors Certificate may be taken P/NC.

- 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.

Special Programs for Undergraduates

- 3+3 Pre-Law Admission Program (p. 173)

3+3 Pre-Law Admission Program

College of Natural Sciences and Mathematics and College of Law 3+3 Pre-Law Admission Program

You can decide to pursue the 3+3 program at any point during your undergraduate study, but it's best to discuss your intention *as early as possible* with your undergraduate advisor to ensure completion of any required courses for your major. You then apply to Toledo Law in your junior year.

To participate in the 3+3 Program, you must fulfill your general education and major requirements by the end of your third year of college. You will postpone a total of 30 credit hours that will be a combination of a required minor (depending on undergraduate program) and/or electives until your senior year. During your senior year, you will attend The University of Toledo College of Law and take the following courses.

- Contracts I (3 credits)
- Contracts II (3 credits)
- Civil Procedure I (3 credits)
- Constitutional Law I (3 credits)
- Property I (3 credits)
- Property II (3 credits)
- Torts (4 credits)
- Criminal Law (4 credits)
- Lawyering Skills I (2 credits)
- Lawyering Skills II or Advanced Legal Analysis (2 credits)

You will apply to graduate with your bachelor's degree in the spring of your first year of law school, and when you have completed all of the above first year law courses, you will be awarded a bachelor's degree from the College of Natural Sciences and Mathematics. This program works best with the BA in Environmental Studies and the BA in Biology but is potentially open to any undergraduate major in the College of Natural Sciences and Mathematics. You will receive your law degree after completing the entire law program.

The program year by year

- Year #1: Fill out the statement of intent and meet with your primary advisor and the NSM 3+3 Law Program Manager
- Year #2: Meet with your primary advisor to make sure you are fulfilling your major requirements.
- Year #3: Take the LSAT, apply to The University of Toledo College of Law, and seek certification by the College of Natural Sciences and Mathematics for degree readiness.
- Year #4: Attend The University of Toledo College of Law, earn passing grades, and apply to graduate with a bachelor's in your chosen major from the College of Natural Sciences and Mathematics.
- Years #5 and #6: Complete law school and graduate with a law degree.

School of Interdisciplinary Data Science

Bill Kalies, Director

Mission

The School of Interdisciplinary Data Science provides a hub to foster excellence in data science education, research, and innovation at the University of Toledo. The school is committed to training the next generation of data scientists across the entire spectrum of the profession in preparation for rewarding careers in today's increasingly data-driven world.

Degrees and Programs Offered

The School of Interdisciplinary Data Science offers a BS with a major in Data Science and a minor in Data Science.

- BS in Data Science (p. 175)
- Minor in Data Science (p. 180)

DATA 2500 Data Science I
[3 credit hours]
Introduction to data science concepts, computer programming to transform raw information into structured data, and analysis of data to answer questions using popular programming and analytic software packages.
Term Offered: Spring, Fall

DATA 4260 Data Visualization
[3 credit hours]
This course introduces students to the principles, techniques, and tools used in data visualization for effective communication and analysis of data. Students will learn how to design and create visualizations that convey insights, patterns, and trends in data. The course will cover both theoretical concepts and practical applications, equipping students with the skills needed to visualize and interpret data in a meaningful way.
Prerequisites: DATA 2500 with a minimum grade of C
Term Offered: Spring, Fall

DATA 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: DATA 2500 with a minimum grade of C
Term Offered: Spring, Fall

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 intership 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

DATA 5300 Introduction to Data Science
[3 credit hours]
Introductory course in data science: regression, classification, and Bayesian methods; Python and R in cloud-based notebook environments; workflows for basic data wrangling, model training; and ethical considerations in data science and AI.
Term Offered: Spring, Summer, Fall

DATA 5310 Mathematical and Statistical Foundations for Data Science
[3 credit hours]
Fundamentals of applied linear algebra, statistical learning, and optimization for a theoretical foundation of data science.
Prerequisites: DATA 5300 with a minimum grade of B-
Term Offered: Spring, Summer, Fall

DATA 5320 Programming for Data Science
[3 credit hours]
Programming skills for applied data science using Python and cloud-based notebook platforms: constructing data pipelines; implementing supervised and unsupervised machine learning models; and critically evaluating performance. Emphasis is placed on interpreting results, using AI as a collaborative tool for debugging and code explanations, and developing reproducible workflows.
Prerequisites: DATA 5300 with a minimum grade of B-
Term Offered: Spring, Summer, Fall

DATA 5330 Data Analytics and Visualization
[3 credit hours]
Exploratory data analysis, data wrangling, and visualization techniques using R, Python, and visualization platforms such as Tableau: creating analytic databases from multiple sources, building dashboards, and visual storytelling. Use of generative AI as a collaborative tool to critique and enhance visualizations. Emphasis on proper application of statistical and visualization methods with real-world, complex datasets.
Prerequisites: DATA 5300 with a minimum grade of B-
Term Offered: Spring, Summer, Fall

DATA 5340 Machine Learning for Data Science
[3 credit hours]
Advanced methods in machine learning and deep learning, with a focus on practical model building in cloud environments. Neural network architectures, including CNNs, RNNs, transformers, and autoencoders. Deep learning, reinforcement learning, and neural network training workflows. Generative AI as a collaborative tool to generate performance comparisons, model critiques, and explanatory summaries.
Prerequisites: DATA 5300 with a minimum grade of B-
Term Offered: Spring, Summer, Fall

DATA 5410 Generative AI for Data Science
[3 credit hours]
Introduction to generative AI with an emphasis on large language models and applications to data science. Natural Language Processing, Transformer architectures, retrieval-augmented generation, prompt engineering, and productivity applications for data science workflows.
Prerequisites: DATA 5300 with a minimum grade of B- and DATA 5310 with a minimum grade of B- and DATA 5320 with a minimum grade of B- and DATA 5330 with a minimum grade of B- and DATA 5340 with a minimum grade of B-
Term Offered: Spring, Summer, Fall

DATA 5420 Data Ethics and Professional Practice
[3 credit hours]
Ethical, legal, and social dimensions of data science and AI, including bias, fairness, privacy, responsible AI, and data governance. Topics include compliance, security, and best practices for professional conduct.
Prerequisites: DATA 5300 with a minimum grade of B- and DATA 5310 with a minimum grade of B- and DATA 5320 with a minimum grade of B- and DATA 5330 with a minimum grade of B- and DATA 5340 with a minimum grade of B-
Term Offered: Spring, Summer, Fall

DATA 5430 Databases and SQL for Data Science
[3 credit hours]
Ethical Principles of database design, querying, and optimization in data science contexts. Relational databases (SQL) and NoSQL databases. Focus on data modeling, schema design, query optimization, and data integration. Emphasis on trade-offs between relational and non-relational approaches, building efficient queries, and integrating databases with Python and cloud-based platforms.
Prerequisites: DATA 5300 with a minimum grade of B- and DATA 5310 with a minimum grade of B- and DATA 5320 with a minimum grade of B- and DATA 5330 with a minimum grade of B- and DATA 5340 with a minimum grade of B-
Term Offered: Spring, Summer, Fall

DATA 5440 Big Data Systems and Cloud Computing
[3 credit hours]
Principles of big data systems and cloud computing for large-scale data science applications. Distributed computing frameworks, streaming systems, and cloud-native architectures. Emphasis on scaling data pipelines, data management, and cloud serviced for storage, processing, and machine learning workflows.
Prerequisites: DATA 5300 with a minimum grade of B- and DATA 5310 with a minimum grade of B- and DATA 5320 with a minimum grade of B- and DATA 5330 with a minimum grade of B- and DATA 5340 with a minimum grade of B-
Term Offered: Spring, Summer, Fall

DATA 6900 Data Science Capstone
[3 credit hours]
Design and implementation of a substantial data science project that addresses a real-world, data-driven problem using statistical and machine learning, databases, cloud platforms, and visualization tools. Emphasis on ethical practice, reproducibility, and effective communication of results.
Term Offered: Spring, Summer, Fall

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 data science methods 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.

Questions regarding the program should be directed to Bill Kalies (william.kalies@utoledo.edu), Director of the School of Interdisciplinary Data Science and program advisor

Data Science-Astrophysics Concentration, BS (p. 175)
Data Science-Environmental Data Concentration, BS (p. 175)
Data Science-Individualized Concentration, BS (p. 176)
Data Science-Public Health Data Concentration, BS (p. 177)

Data Science-Astrophysics Concentration, BS

Code	Title	Hours
UToledo Core Curriculum (36 total)		29
Required MATH & PHYS courses provide 7 credit hours		
UToledo Multicultural		6
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course within the Program (3 cr)		
Required courses for the BS Data Science:		
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
DATA 2500	Data Science I	3
DATA 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
or DATA 4260	Data Visualization	
PHIL 3160	Data Science Ethics	3
Required courses for the Concentration in Astrophysics Data:		
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 (WAC)	3
Total Hours		**120**

Data Science-Environmental Data Concentration, BS

Code	Title	Hours
UToledo Core Curriculum (36 total)		29
Required MATH & EEES courses provide 7 credit hours		
UToledo Multicultural		6

College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course within the Program		3
EEES 3900	Literature and Communications in the Environmental Sciences	
Required courses for the BS Data Science:		
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
DATA 2500	Data Science I	3
DATA 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
or DATA 4260	Data Visualization	
PHIL 3160	Data Science Ethics	3
Required courses for the Environmental Data Concentration:		
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:		4-5
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 and Visualization	3
EEES 4490	Remote Sensing of The Environment	4
Total Hours		**120-121**

Data Science-Individualized Concentration, BS

Code	Title	Hours
UToledo Core Curriculum (36 total)		28
Required MATH courses provide 8 credit hours		
UToledo Multicultural		6
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course approved by advisor (3 cr)		3
Required courses for the BS Data Science:		
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
DATA 2500	Data Science I	3
DATA 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
or DATA 4260	Data Visualization	
PHIL 3160	Data Science Ethics	3
Requirement for a related Minor for the Individualized Concentration		18
Refer to the guidelines below for details		
Total Hours		**120**

In areas of study where an existing concentration in the Data Science major is not available, a related minor may 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
UToledo Core Curriculum (36 total)		28
Required MATH courses provide 8 credit hours		
UToledo Multicultural		6
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course approved by advisor (3 cr)		3
Required courses for the BS Data Science:		
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
DATA 2500	Data Science I	3
DATA 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
or DATA 4260	Data Visualization	
PHIL 3160	Data Science Ethics	3
Required courses for the Concentration in Public Health Data:		
HEAL 2700	Introduction to Public Health	3
HEAL 2750	Introduction to Epidemiology	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
Total Hours		**120**

Students may not take any courses required in the Data Science major as P/NC.

Data Science-Astrophysics Concentration, BS (p. 177)
Data Science-Environmental Data Concentration, BS (p. 175)
Data Science-Individualized Concentration, BS (p. 178)

Data Science-Public Health Data Concentration, BS (p. 177)

Data Science-Astrophysics Concentration, BS

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	0-1
MATH 1850	Single Variable Calculus I	4
DATA 2500	Data Science I	3
ENGL 1110	College Composition I	3
Arts/Humanities Core		3
	Hours	**13-14**
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
ASTR 2020	Stars, Galaxies, And The Universe	3
NSM 1500	Building a Career in Science and Math	1
	Hours	**15**
Third Term		
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
	Hours	**15**
Fourth Term		
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
	Hours	**15**
Fifth Term		
MATH 4680	Introduction To Theory Of Probability	3
PHYS 3310	Modern Physics I (WAC)	3
CSET 3300	Database-Driven Web Sites	4
Non#US Diversity		3
Social Science Core		3
	Hours	**16**
Sixth Term		
MATH 4690	Introduction To Mathematical Statistics	3
PHIL 3160	Data Science Ethics	3
ASTR 3880	Foundations of Astronomy	4

Elective		3
Arts/Humanities Core		3
	Hours	**16**
Seventh Term		
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
	Hours	**15**
Eighth Term		
DATA 4500	Data Science II	3
Social Sciences Core		3
US Diversity		3
Electives		5
	Hours	**14**
	Total Hours	**119-120**

Data Science-Environmental Data Concentration, BS

First Term		**Hours**
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
MATH 1850	Single Variable Calculus I	4
HHS 2500	Data Science I	3
ENGL 1110	College Composition I	3
Arts/Humanities Core		3
	Hours	**14**
Second Term		
NSM 1500	Building a Career in Science and Math	1
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
	Hours	**15**
Third Term		
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
	Hours	**15**
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
EEES 2020	Introduction to the Environment: Energy and Climate	3
	Hours	**17**
Fifth Term		
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		3
Arts/Humanities Core		3
	Hours	**15**
Sixth Term		
ART 2800	Visual Literacy-Data Visualization	3
MATH 4690	Introduction To Mathematical Statistics	3
PHIL 3160	Data Science Ethics	3
EEES 3900	Literature and Communications in the Environmental Sciences	3
Diversity of US		3
	Hours	**15**
Seventh Term		
GEPL 4110	Geographic Information Systems	3
ECON 4810	Econometrics Models And Methods I	3
EEES 4160	Environmental Data Management and Visualization	3
EEES 4490	Remote Sensing of The Environment	4
EECS 4750	Machine Learning	3
	Hours	**16**
Eighth Term		
HHS 4500	Data Science II	3
Social Sciences Core		3
Elective		3
Natural Science Core		4
	Hours	**13**
	Total Hours	**120**

Data Science-Individualized Concentration, BS

First Year

First Term		**Hours**
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
MATH 1850	Single Variable Calculus I	4
HHS 2500	Data Science I	3
ENGL 1110	College Composition I	3
Arts/Humanities Core		3
	Hours	**14**
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
NSM 1500	Building a Career in Science and Math	1
	Hours	**15**
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
	Hours	**16**
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
	Hours	**14-15**
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
US Diversity (WAC)		3
Social Sciences Core		3
	Hours	**16**
Sixth Term		
MATH 4690	Introduction To Mathematical Statistics	3
PHIL 3160	Data Science Ethics	3
Elective in Concentration/ Minor requirement		3
Elective		3
Arts/Humanities Core		3
	Hours	**15**
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
	Hours	**15**
Eighth Term		
HHS 4500	Data Science II	3
Elective in Concentration/ Minor requirement		3
Social Science Core		3
Non-US Diversity		3
Elective		3
	Hours	**15**
	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	1
MATH 1850	Single Variable Calculus I	4
HHS 2500	Data Science I	3
ENGL 1110	College Composition I	3
Arts/Humanities Core		3
	Hours	**14**
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
NSM 1500	Building a Career in Science and Math	1
	Hours	**15**
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
	Hours	**14-15**
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
	Hours	**17**
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
US Diversity (WAC)		3
	Hours	**15**
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
	Hours	**15**
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
	Hours	**15-16**
Eighth Term		
HHS 4500	Data Science II	3
HEAL 4800	Public Health Research And Statistics	3
Social Sciences Core		3
Arts/Humanities Core		3
Non-US Diversity		3
	Hours	**15**
	Total Hours	**120-122**

- 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 well-being.
- PLO 3. Students will be able to select and apply the appropriate computational algorithms, statistical software packages, and programming skills that are based on the evaluation of a specific data 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 well-being 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.

Minor in Data Science

Code	Title	Hours
Required Data Science Courses (6 credits)		
DATA 2500	Data Science I	3
DATA 4500	Data Science II	3
Required Statistics Course - Choose One Course (3 credits)		3
MATH 2600	Introduction To Statistics	
MATH 3610	Statistical Methods I	
ECON 2810	Introduction to Econometrics	
PSY 2100	Statistical Methods	
Elective Courses (9 credits)		9
DATA 4260	Data Visualization	
CSET 3300	Database-Driven Web Sites	
DANN 2000	Proseminar in Data Analytics I	
DANN 4000	Proseminar in Data Analytics II	
ECON 3810	Applied Econometrics	
EECS 4750	Machine Learning	
EEES 4160	Environmental Data Management and Visualization	
MATH 3610	Statistical Methods I	
MATH 3620	Statistical Methods II	
PHIL 3160	Data Science Ethics	
Total Hours		**18**

Appropriate substitutions for the statistics requirement or elective courses are possible with approval of the program director.

MATH 3610 requires completion of the prerequisite Calculus II (MATH 1860) course prior to enrolling.

Students may not take any courses required in the Data Science minor as P/NC.

- Understand the lifecycle of data by locating, evaluating, and preparing data for analysis to make it usable for solving real-world problems.
- Apply mathematical and statistical reasoning to extract meaningful insights from data.
- Present data-driven results clearly and responsibly.

Department of Chemistry & Biochemistry

Steven Sucheck, Chair
Wei Li, Associate Chair and Undergraduate Advisor
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

Degrees Offered

The Department of Chemistry and Biochemistry offers Bachelor of Science degree programs in chemistry and biochemistry, with several chemistry tracks designed to support different student goals.

Available degree options include:

- B.S. in Chemistry
- B.S. in Chemistry – Materials Chemistry Concentration

- B.S. in Chemistry – Pre-Medical Professions Concentration
- B.S. in Chemistry – ACS-Certified Concentration
- B.S. in Biochemistry

The **B.S. in Chemistry – ACS-Certified Concentration** and the **B.S. in Biochemistry** are designed to meet the certification guidelines of the American Chemical Society Committee on Professional Training.

https://www.acs.org/content/dam/acsorg/about/governance/committees/training/acsapproved/degreeprogram/why-obtain-a-bachelors-degree-certified-to-the-acs.pdf (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.acs.org%2Fcontent%2Fdam%2Facsorg%2Fabout%2Fgovernance%2Fcommittees%2Ftraining%2Facsapproved%2Fdegreeprogram%2Fwhy-obtain-a-bachelors-degree-certified-to-the-acs.pdf&data=05%7C02%7CHeather.Conti%40UToledo.edu%7Cd361d720b8924d41784608dec59d1a8b%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C639165475729222474%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=eXlobDlbwvWVtUDA5Qi%2BIcpFVKVzbViPaGRsZiFleo8%3D&reserved=0)

A minor in chemistry, a minor in Green Chemistry and Engineering, and certificates in Analytical Chemistry and 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. 188)
- BS in Chemistry (p. 191)
- Minor in Chemistry (p. 200)
- Minor in Green Chemistry & Engineering (p. 200)
- Certificate in Analytical Chemistry (p. 201)
- Certificate in Materials Chemistry (p. 201)

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. Co-requisite: CHEM 1230.
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
Corequisites: CHEM 1230
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 spectrocscopic 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: Measurement and Modeling of Chemical Phenomena
[0-2 credit hours]
This course provides hands-on experience with modern techniques and instrumentation used to measure and model the behavior of chemical systems. Students will measure molecular properties such as thermodynamic parameters, reaction kinetics, and spectroscopic characteristics. Emphasis on connecting experimental data to theoretical models through computational analysis and quantitative reasoning and strengthening problem-solving skills, experimental design, and the interpretation of complex data in the context of real-world chemical phenomena. Provides practical experience to complement concepts learned in CHEM 3710, CHEM 3730, and CHEM 4570.
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: Practical Inorganic and Materials Chemistry
[2 credit hours]
This course explores the synthesis, characterization, and reactivity of inorganic compounds. Students will prepare coordination complexes, main-group compounds, and solid-state materials while gaining experience with advanced techniques such as powder X-ray diffraction, thermogravimetric analysis, scanning electron microscopy, dynamic light scattering, absorption spectroscopy, magnetic measurements, and heteroatom nuclear magnetic resonance spectroscopy. The course integrates experimental design with modern applications in catalysis, nanomaterials, and functional materials chemistry, and complements CHEM 3610, CHEM 4800, CHEM 4810, and CHEM 4830.
Prerequisites: CHEM 3610 with a minimum grade of C- or CHEM 4800 with a minimum grade of C- or CHEM 4810 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. Prerequisite: Permission of department.
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 chlemistry 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 or PHYS 3310 with a minimum grade of C or PHYS 4630 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: Instrumental Analysis of Molecules and Materials
[2 credit hours]
This capstone laboratory course uses advanced analytical and instrumental techniques to investigate the composition, structure, and properties of chemical, biochemical, and materials systems. Students will integrate and apply concepts and skills from prior courses to design and carry out multifaceted experiments using spectroscopy, chromatography, electrochemistry, and microscopy to solve real-world analytical challenges. Through guided inquiry and independent projects, students will develop proficiency in modern instrumentation and data-driven problem solving relevant to research, industry, and graduate-level study. The course is a practical supplement to CHEM 4300.
Prerequisites: 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."

1. **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.
2. **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:

Code	Title	Hours
UToledo Core Curriculum		36
UToledo Multicultural		6
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course within the Program (3 cr)		
Course Requirements for the BS Biochemistry		
Required Chemistry courses:		
49 hours of CHEM courses are required for the BS Biochemistry		
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 2480	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis	2
CHEM 2490	Organic Chemistry Laboratory II for Majors: Synthesis and Identification	2
CHEM 3310	Analytical Chemistry	2
CHEM 3360	Analytical Chemistry Laboratory	2
CHEM 3510	Biochemistry I	3
CHEM 3520	Biochemistry II	3
CHEM 3560	Biochemistry Laboratory	2
CHEM 3610	Inorganic Chemistry I	3
CHEM 4300	Instrumental Analysis	2
CHEM 4560	Biophysical Chemistry Laboratory - WAC	2
CHEM 4570	Biophysical Chemistry	4
One advanced CHEM laboratory:		1
CHEM 3910	Undergraduate Research II (One advanced laboratory:)	1
or CHEM 4880	Advanced Laboratory III: Instrumental Analysis of Molecules and Materials	
or CHEM 4910	Undergraduate Research III	
One advanced CHEM course with biochemistry focus:		
CHEM 4500	Advanced Biological Chemistry (One advanced biochemistry course, with biochemistry focus)	4
or CHEM 4510	Protein Chemistry	
or CHEM 4520	Enzymology	
or CHEM 4580	Bioinorganic Chemistry	
or CHEM 4980	Special Topics In Chemistry	
Required related courses:		
MATH 1750	Calculus For The Life Sciences With Applications I	4
or MATH 1850	Single Variable Calculus I	
MATH 1760	Calculus For The Life Sciences With Applications II	3
or MATH 1860	Single Variable Calculus II	
PHYS 2070	General Physics I	4
or PHYS 2130	Physics For Science And Engineering Majors I	
PHYS 2075	General Physics I - Lab	1
or PHYS 2135	Physics for Science and Engineering Majors I - Lab	
PHYS 2080	General Physics II	4
or PHYS 2140	Physics For Science And Engineering Majors II	
PHYS 2085	General Physics II - Lab	1
or PHYS 2145	Physics for Science and Engineering Majors II - Lab	
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 3030	Cell Biology	3
Electives:		3
Total Hours		**120**

Combined bachelor's to master's -, BS in Biochemistry/MS in Chemistry - Non-Thesis Option, BS in Biochemistry/MS in Chemistry - Green Chemistry and Engineering Concentration

Undergraduate students in the SM-BCHM-BS (BS in Biochemistry) program who are accepted into the accelerated degree pipeline program option will be admitted to the SM-CHEM-MS (MS in Chemistry - Non-thesis Option) or SM-CHEM-MS (MS in Chemistry - Green Chemistry and Engineering Concentration) and allowed to complete up to nine credit hours or graduate courses after reaching junior status. Students must request admission into the BSMS program through their advisor no earlier than the spring of their sophomore year and no later than the spring of their junior year. To qualify for the pipeline program, an undergraduate student must have a GPA of at least 3.0 in CHEM courses and have the permission of their advisor. Students below this GPA cutoff may petition the department for admission. Students accepted into the pipeline program will develop a plan of study in consultation with their advisor and must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate.

Once the student is admitted to the graduate program, there will be two matriculations: (1) the undergraduate program will remain primary and (2) the graduate program becomes secondary. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) completed in the final undergraduate year 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. When the student applies for graduation from the undergraduate program an automatic registration hold is placed on student records. However, as there is a second active program tied to the student's record, the

Registrar's Office will send the list of students with an active graduate matriculation to COGS to ensure that future registration at the graduate-level is not restricted.

The following provisions apply for classes taken for graduate credit:

1. Only graduate classes taken at The University of Toledo after the student is accepted in the BS/MS program may be included.
2. For students in the BS Biochemistry/MS in Chemistry - Non-thesis Option pipeline, the approved nine semester hours of graduate credit taken as an undergraduate should include CHEM 6500, CHEM 6570, and CHEM 6940. Substitutions to these courses may be made with authorization of advisor.
3. For students in the BS Biochemistry/MS in Chemistry - Green Chemistry and Engineering Concentration pipeline, the approved nine semester hours of graduate credit taken as an undergraduate should include CHEM 6200, CHEM 6210, and CHEE 6010. Substitutions to these courses may be made with authorization of advisor.

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 1850	Single Variable Calculus I	
ENGL 1110	College Composition I	3
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
Arts/Humanities Core		3
	Hours	**16**
Second Term		
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 1860	Single Variable Calculus II	
NSM 1500	Building a Career in Science and Math	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Social Sciences Core		3
	Hours	**16-17**
Third Term		
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
	Hours	**15**
Fourth Term		
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
	Hours	**15**
Fifth Term		
CHEM 3510	Biochemistry I	3
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
Diversity of US		3
Electives		5
	Hours	**15**
Sixth Term		
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
	Hours	**15**
Seventh Term		
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: Instrumental Analysis of Molecules and Materials	
Elective or select one of the following: [1]		4

CHEM 4500	Advanced Biological Chemistry	
or select one advanced biochemistry course in spring semester		
	Hours	**14**
Eighth Term		
Elective or one advanced biochemistry course if not taken in the fall: [1]		4
CHEM 4510	Protein Chemistry	
CHEM 4520	Enzymology	
CHEM 4580	Bioinorganic Chemistry	
CHEM 4980	Special Topics In Chemistry	
Electives to reach 120 hours		10
	Hours	**14**
	Total Hours	**120-121**

[1] 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 – ACS-Certified Concentration, BS
- Chemistry – Materials Chemistry Concentration, BS
- Chemistry - Pre-Medical Professions Concentration, BS

Code	Title	Hours
Course Requirements for the B.S. Chemistry		
B.S. Chemistry Major Courses		
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 2480	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis	2
CHEM 2490	Organic Chemistry Laboratory II for Majors: Synthesis and Identification	2
CHEM 3310	Analytical Chemistry	2
CHEM 3360	Analytical Chemistry Laboratory (WAC)	2

NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
PHYS 2130	Physics For Science And Engineering Majors I	4
or PHYS 2070	General Physics I	
Upper-Level Chemistry Electives		
At least 18 additional credit hours of 3000-4000 level CHEM courses except the following:		18
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 4920	Readings In Chemistry III	
No more than 2 hours may come from CHEM 4910		
These must include at least two hours of advanced laboratories, chosen from among:		
CHEM 3560	Biochemistry Laboratory	
or CHEM 386	Advanced Laboratory I: Measurement and Modeling of Chemical Phenomena	
or CHEM 387	Advanced Laboratory II: Practical Inorganic and Materials Chemistry	
or CHEM 488	Advanced Laboratory III: Instrumental Analysis of Molecules and Materials	
or CHEM 456	Biophysical Chemistry Laboratory - WAC	
UT Core Curriculum		
Composition I and II		*6*
Mathematics		
MATH 1850	Single Variable Calculus I	4
or MATH 1320 & MATH 1330	College Algebra and Trigonometry	
or MATH 1340	College Algebra And Trigonometry	
or MATH 1750	Calculus For The Life Sciences With Applications I	
Natural Sciences		
PHYS 2135	Physics for Science and Engineering Majors I - Lab	1
or PHYS 2075	General Physics I - Lab	
PHYS 2140	Physics For Science And Engineering Majors II	4
or PHYS 2080	General Physics II	
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
or PHYS 2085	General Physics II - Lab	
Humanities and Fine Arts		*6*
Social Sciences		*6*
UT Core Electives		*9*
Multicultural		*6*
Additional Electives to reach 120 credit hours		*28*
Total Hours		**120**

A minimum cumulative GPA of 2.0 in chemistry courses is required for graduation with this degree.

Chemistry – ACS-Certified Concentration, BS

Code	Title	Hours
Course Requirements for the B.S. Chemistry - ACS-Certified Concentration		
B.S. Chemistry Major Courses		
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 2480	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis	2
CHEM 2490	Organic Chemistry Laboratory II for Majors: Synthesis and Identification	2
CHEM 3310	Analytical Chemistry	2
CHEM 3360	Analytical Chemistry Laboratory (WAC)	2
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
PHYS 2130	Physics For Science And Engineering Majors I	4
ACS Certified Concentration Courses		
CHEM 3510	Biochemistry I	3
CHEM 3610	Inorganic Chemistry I	3
CHEM 3730	Physical Chemistry I	3
CHEM 3740	Physical Chemistry II	3
CHEM 3860	Advanced Laboratory I: Measurement and Modeling of Chemical Phenomena (WAC)	2
CHEM 3870	Advanced Laboratory II: Practical Inorganic and Materials Chemistry	2
CHEM 4300	Instrumental Analysis	2
CHEM 4880	Advanced Laboratory III: Instrumental Analysis of Molecules and Materials	2
UT Core Curriculum		
Composition I and II		*6*
Mathematics		
MATH 1850	Single Variable Calculus I	4
Natural Sciences		
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
Humanities and Fine Arts		*6*
Social Sciences		*6*
UT Core Electives		*1*
MATH 1860	Single Variable Calculus II	4

MATH 2850	Elementary Multivariable Calculus	4
Multicultural		*6*
Additional Electives to Reach 120 credit hours		*26*
Total Hours		**120**

A minimum cumulative GPA of 2.0 in chemistry courses is required for graduation with this degree.

Combined bachelor's to master's - B.S. in Chemistry (ACS-Certified Concentration or Materials Chemistry Concentration)/M.S. in Chemistry

Undergraduate students in the **B.S. in Chemistry (ACS-Certified Concentration or Materials Chemistry Concentration)** program accepted to the accelerated degree pipeline program option will be admitted to the **SM-CHEM-MS (M.S. in Chemistry - Non-Thesis Option)** or the **SM-CHEM-MS-GRCE (M.S. in Chemistry – Green Chemistry and Engineering Concentration)** 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) For students in the B.S. Chemistry/M.S. Chemistry (Non-Thesis Option) pipeline, the following courses may be included in the approved nine semester hours of graduate credit taken as an undergraduate: CHEM 6200, 6210, 6300, 6310, 6320, 6330, 6340, 6400, 6410, 6420, 6430, 6440, 6500, 6510, 6520, 6570, 6600, 6610, 6620, 6700, 6710, 6720, 6730, 6800, 6810, 6820, 6830, 6850, 6940, 6950, 6980. The choice of courses should be relevant to the agreed upon plan of study.

3) For students in the B.S. Chemistry/M.S. Chemistry (Green Chemistry and Engineering Concentration) pipeline, the approved nine semester hours of graduate credit taken as an undergraduate should include CHEM 6200, CHEM 6210, and CHEE 6010. Substitutions to these courses may be made with authorization of advisor.

4) Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

Combined bachelor's to master's - B.S. in Chemistry(ACS-Certified Concentration or Materials Chemistry Concentration)/~~M.S.~~ in Cosmetic Science and Formulation Design

Undergraduate ~~Hybrid Program - Thesis and non-thesis OptionMaster's~~ students in ~~need to complete~~ the B.S. ~~following courses as a partial fulfillment of their requirement for an MS degree:~~ in Chemistry (ACS-Certified Concentration or Materials Chemistry Concentration) program who are accepted into the accelerated degree pipeline program option will be admitted to the PH-CSFM-MS (M.S. in Cosmetic Science and Formulation Design) and allowed to complete up to nine credit hours or graduate courses after reaching junior status. Students must request admission into the pipeline program through their advisor no earlier than the spring of their sophomore year and no later than the summer after their junior year. To qualify for the pipeline program, an undergraduate student must have a GPA of at least 2.7 and have the permission of their advisor. Students accepted into the pipeline program will develop a plan of study in consultation with their advisors in Chemistry and Cosmetic Science and must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate.

Once the student is admitted to the graduate program, there will be two matriculations, (1) undergraduate program will remain primary and (2) graduate program becomes secondary. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) completed in the final undergraduate year 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. When the student applies for graduation from the undergraduate program an automatic registration hold is placed on student records. However, as there is a second active program tied to the student's record, the Registrar's Office will send the list of students with an active graduate matriculation to COGS to ensure that future registration at the graduate-level is not restricted.

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 BS/MS program, 2) For students in the B.S. in Chemistry/M.S. in Cosmetic Science and Formulation Design pipeline, the following courses may be included in the approved nine semester hours of graduate credit taken as an undergraduate:

PHPR 5800	Cosmetic Ingredients and Product Forms
PHPR 5820	Cosmetic Trends and Claims
PHPR 5830	Cosmetic Regulations, Ethics, and Practices

These will count as electives towards 120 credit hours for the B.S. in Chemistry and are required courses for the M.S. in Cosmetic Science and Formulation Design.

Chemistry – Materials Chemistry Concentration, BS

Code	Title	Hours
Course Requirements for the B.S. Chemistry - Materials Chemistry Concentration		
B.S. Chemistry Major Courses		
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 2480	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis	2
CHEM 2490	Organic Chemistry Laboratory II for Majors: Synthesis and Identification	2
CHEM 3310	Analytical Chemistry	2
CHEM 3360	Analytical Chemistry Laboratory (WAC)	2
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
PHYS 2130	Physics For Science And Engineering Majors I	4
Materials Chemistry Concentration Courses		
CHEM 3610	Inorganic Chemistry I	3
CHEM 3730	Physical Chemistry I	3
CHEM 3740	Physical Chemistry II	3
CHEM 3860	Advanced Laboratory I: Measurement and Modeling of Chemical Phenomena (WAC)	2
CHEM 3870	Advanced Laboratory II: Practical Inorganic and Materials Chemistry	2
CHEM 4810	Materials Science I	4
CHEM 4820	Materials Science II	4
Two of:		7-8
CHEM 4800	Advanced Materials Chemistry	
CHEM 4830	Nanomaterials Science	
CHEE 4800	Polymer Science And Engineering	
Two of:		6-8
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	
UT Core Curriculum		
Composition I and II		*6*
Mathematics		
MATH 1850	Single Variable Calculus I	4
Natural Sciences		
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
Humanities and Fine Arts		*6*
Social Sciences		*6*
UT Core Electives		*1*
MATH 1860	Single Variable Calculus II	4
MATH 2850	Elementary Multivariable Calculus	4
Multicultural		*6*
Additional Electives to Reach 120 credit hours		*12-15*
Total Hours		**120-126**

A minimum cumulative GPA of 2.0 in chemistry courses is required for graduation with this degree.

Combined bachelor's to master's - B.S. in Chemistry (Materials Chemistry Concentration)/M.S. in Chemistry

Undergraduate students in the BS in Chemistry (Materials Chemistry Concentration) program accepted to the accelerated degree pipeline program option will be admitted to the **SM-CHEM-MS (MS in Chemistry - Non-Thesis Option)** or the **SM-CHEM-MS-GRCE (MS in Chemistry – Green Chemistry and Engineering Concentration)** 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) For students in the BS Chemistry(Materials Chemistry Concentration)/ MS Chemistry (Non-Thesis Option) pipeline, the following courses may be included in the approved nine semester hours of graduate credit taken as an undergraduate: CHEM 6200, 6210, 6300, 6310, 6320, 6330, 6340, 6400, 6410, 6420, 6430, 6440, 6500, 6510, 6520, 6570, 6600, 6610, 6620, 6700, 6710, 6720, 6730, 6800, 6810, 6820, 6830, 6850, 6940, 6950, 6980. The choice of courses should be relevant to the agreed upon plan of study.

3) For students in the BS Chemistry(Materials Chemistry Concentration)/ MS Chemistry (Green Chemistry and Engineering Concentration) pipeline, the approved nine semester hours of graduate credit taken as an undergraduate should include CHEM 6200, CHEM 6210, and CHEE 6010. Substitutions to these courses may be made with authorization of advisor.

4) Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

Combined bachelor's to master's - B.S. in Chemistry (Materials Chemistry Concentration)/M.S. in Chemical Engineering

Undergraduate students in the BS in Chemistry (Materials Chemistry Concentration) program who are accepted into the accelerated degree pipeline program option will be admitted to the EN-CHME-MS (MS in Chemical Engineering) and allowed to complete up to nine credit hours or graduate courses after reaching junior status. Students must request admission into the pipeline program through their advisor no earlier than the spring of their sophomore year and no later than the summer after their junior year. To qualify for the pipeline program, an undergraduate student must have completed CHEM 3730 and 3740, PHYS 2130, MATH 2850, and MATH 2860, and have a GPA of at least 3.0 in CHEM courses and the permission of their advisor. Students accepted into the pipeline program will develop a plan of study in consultation with their advisors in Chemistry and Chemical Engineering and must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate.

Once the student is admitted to the graduate program, there will be two matriculations, (1) undergraduate program will remain primary and (2) graduate program becomes secondary. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) completed in the final undergraduate year 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. When the student applies for graduation from the undergraduate program an automatic registration hold is placed on student records. However, as there is a second active program tied to the student's record, the Registrar's Office will send the list of students with an active graduate matriculation to COGS to ensure that future registration at the graduate-level is not restricted.

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 BS/MS program.

2) For students in the B.S. in Chemistry (Materials Chemistry Concentration)/M.S. in Chemical Engineering pipeline, students must take CHEM 3730 and 3740 or CHEM 3710 and 3720, PHYS 2130, MATH 2850, and MATH 2860 before beginning graduate-level coursework.

3) For students in the B.S. in Chemistry (Materials Chemistry Concentration)/M.S. in Chemical Engineering pipeline, three of the following courses may be included in the approved nine semester hours of graduate credit taken as an undergraduate:

CHEE 6010	Green Engineering Principles	3
CHEE 6500	Advanced Chemical Reaction Engineering	3
CHEE 6510	Advanced Chemical Engineering Thermodynamics	3
CHEE 6550	Advanced Fluid Mechanics	3

These will count as electives towards 120 credit hours for the B.S. degree and are required courses for the EN-CHME-MS.

Combined bachelor's to master's - BS in Chemistry(Materials Chemistry Concentration)/MS in Cosmetic Science and Formulation Design

Undergraduate students in the SM-CHEM-BS (BS in Chemistry, Materials Chemistry Concentration) program who are accepted into the accelerated degree pipeline program option will be admitted to the PH-CSFM-MS (MS in Cosmetic Science and Formulation Design) and allowed to complete up to nine credit hours or graduate courses after reaching junior status. Students must request admission into the pipeline program through their advisor no earlier than the spring of their sophomore year and no later than the summer after their junior year. To qualify for the pipeline program, an undergraduate student must have a GPA of at least 2.7 and have the permission of their advisor. Students accepted into the pipeline program will develop a plan of study in consultation with their advisors in Chemistry and Cosmetic Science and must apply for admission to the College of Graduate Studies for the semester that they intend to matriculate.

Once the student is admitted to the graduate program, there will be two matriculations, (1) undergraduate program will remain primary and (2) graduate program becomes secondary. They will then continue into the graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine hours) completed in the final undergraduate year 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. When the student applies for graduation from the undergraduate program an automatic registration hold is placed on student records. However, as there is a second active program tied to the student's record, the Registrar's Office will send the list of students with an active graduate matriculation to COGS to ensure that future registration at the graduate-level is not restricted.

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 BS/MS program.

2) For students in the BS in Chemistry/MS in Cosmetic Science and Formulation Design pipeline, the following courses may be included in the approved nine semester hours of graduate credit taken as an undergraduate:

PHPR 5800	Cosmetic Ingredients and Product Forms
PHPR 5820	Cosmetic Trends and Claims
PHPR 5830	Cosmetic Regulations, Ethics, and Practices

These will count as electives towards 120 credit hours for the B.S. degree and are required courses for the PH-CSFM-MS.

Chemistry - Pre-Medical Professions Concentration, BS

Code	Title	Hours
Course Requirements for the B.S. Chemistry Pre-Medical Studies Concentration		
B.S. Chemistry Major Courses		
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 2480	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis	2
CHEM 2490	Organic Chemistry Laboratory II for Majors: Synthesis and Identification	2
CHEM 3310	Analytical Chemistry	2
CHEM 3360	Analytical Chemistry Laboratory (WAC)	2
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
PHYS 2070	General Physics I	4
or PHYS 2130	Physics For Science And Engineering Majors I	
B.S. Chemistry Pre-Medical Professional Concentration Courses:		
CHEM 3510	Biochemistry I	3
CHEM 3520	Biochemistry II	3
CHEM 3560	Biochemistry Laboratory	2
At least 10 additional credit hours of 3000-4000 level CHEM courses except the following:		10
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 4920	Readings In Chemistry III	
No more than 2 hours may come from CHEM 4910		
MATH 2600	Introduction To Statistics	3
or MATH 2640	Statistics for Applied Science	
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
BIOL 3010	Molecular Genetics	3
BIOL 3030	Cell Biology	3
BIOL 3070	Human Physiology	3
UT Core Curriculum		
Composition I and II		*6*
Mathematics		
MATH 1850	Single Variable Calculus I	4
or MATH 1320	College Algebra	
or MATH 1340	College Algebra And Trigonometry	
or MATH 1750	Calculus For The Life Sciences With Applications I	
Natural Sciences		
PHYS 2075	General Physics I - Lab	1
or PHYS 2135	Physics for Science and Engineering Majors I - Lab	
PHYS 2080	General Physics II	4
or PHYS 2140	Physics For Science And Engineering Majors II	
PHYS 2085	General Physics II - Lab	1
or PHYS 2145	Physics for Science and Engineering Majors II - Lab	
Humanities and Fine Arts		*6*
Social Sciences		
PSY 1010	Principles Of Psychology	3
SOC 1010	Introduction To Sociology	3
UT Core Electives		
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
Multicultural		*6*
Additional Electives to Reach 120 Credit Hours		*15*
Total Hours		**120**

A minimum cumulative GPA of 2.0 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. 191)
- Chemistry – ACS-Certified Concentration, BS
- Chemistry – Materials Chemistry Concentration, BS (p. 194)
- Chemistry - Pre-Medical Professions Concentration, BS (p. 196)

Chemistry , BS

First Term		Hours
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
MATH 1850	Single Variable Calculus I	4
or MATH 1320	or College Algebra	
or MATH 1340	or College Algebra And Trigonometry	
or MATH 1750	or Calculus For The Life Sciences With Applications I	
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
ENGL 1110	College Composition I	3
Arts/Humanities Core		3
	Hours	**16**
Second Term		
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1

MATH 1860 or MATH 1330	Single Variable Calculus II or Trigonometry	4
NSM 1500	Building a Career in Science and Math	1
CHEM 1910	Survey Of Research	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
	Hours	**14**
Third Term		
CHEM 2410	Organic Chemistry I	3
CHEM 2480	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis	2
CHEM 3310	Analytical Chemistry	2
PHYS 2130 or PHYS 2070	Physics For Science And Engineering Majors I or General Physics I	4
PHYS 2135 or PHYS 2075	Physics for Science and Engineering Majors I - Lab or General Physics I - Lab	1
NSM 2000	Professional Career Preparation in Math and Science	1
	Hours	**13**
Fourth Term		
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 or PHYS 2080	Physics For Science And Engineering Majors II or General Physics II	4
PHYS 2145 or PHYS 2085	Physics for Science and Engineering Majors II - Lab or General Physics II - Lab	1
Social Sciences Core		3
	Hours	**15**
Fifth Term		
3000-4000 level CHEM Elective		3
3000-4000 level CHEM Elective		3
Upper Level CHEM Lab Course		2
CHEM 3910	Undergraduate Research II	1
Multicultural Non-US Diversity		3
Social Sciences Core		3
	Hours	**15**
Sixth Term		
3000-4000 level CHEM Elective		3
3000-4000 level CHEM Elective		3
Multicultural Diversity of US		3
Elective		6
	Hours	**15**
Seventh Term		
3000-4000 level CHEM Elective		3
3000-4000 level CHEM Elective		3
CHEM 4910	Undergraduate Research III	1
Electives		6
Arts/Humanities Core		3
	Hours	**16**
Eighth Term		
3000-4000 level CHEM Elective		3
CHEM 4910	Undergraduate Research III	1
Electives - to reach 120 hours		12
	Hours	**16**
	Total Hours	**120**

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 – ACS-Certified 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
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
ENGL 1110	College Composition I	3
Arts/Humanities Core		3
	Hours	**16**
Second Term		
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
MATH 1860	Single Variable Calculus II	4
NSM 1500	Building a Career in Science and Math	1
CHEM 1910	Survey Of Research	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Social Sciences Core		3
	Hours	**17**
Third Term		
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
NSM 2000	Professional Career Preparation in Math and Science	1
	Hours	**17**

Fourth Term		
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
	Hours	**15**
Fifth Term		
CHEM 3510	Biochemistry I	3
CHEM 3730	Physical Chemistry I	3
CHEM 3860	Advanced Laboratory I: Measurement and Modeling of Chemical Phenomena (WAC)	2
Multicultural Non-US Diversity		3
Social Science Core elective		3
	Hours	**14**
Sixth Term		
CHEM 3610	Inorganic Chemistry I	3
CHEM 3740	Physical Chemistry II	3
CHEM 3870	Advanced Laboratory II: Practical Inorganic and Materials Chemistry	2
CHEM 3910	Undergraduate Research II	1
Multicultural Diversity of US		3
Elective		3
	Hours	**15**
Seventh Term		
CHEM 4300	Instrumental Analysis	2
CHEM 4880	Advanced Laboratory III: Instrumental Analysis of Molecules and Materials	2
CHEM 4910	Undergraduate Research III	1
Electives		9
	Hours	**14**
Eighth Term		
Art/Humanities Core		3
Electives - to reach 120 hours		9
	Hours	**12**
	Total Hours	**120**

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	1
Arts/Humanities Core		3
	Hours	**16**
Second Term		
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
NSM 1500	Building a Career in Science and Math	1
	Hours	**14**
Third Term		
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
NSM 2000	Professional Career Preparation in Math and Science	1
	Hours	**17**
Fourth Term		
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
	Hours	**15**
Fifth Term		
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: Measurement and Modeling of Chemical Phenomena (WAC)	2
CHEM 3910	Undergraduate Research II	1
Multicultural Non-US Diversity		3
Social Science Core elective		3
	Hours	**16**
Sixth Term		
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: Practical Inorganic and Materials Chemistry	2
Multicultural Diversity of US		3
	Hours	**15**
Seventh Term		
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	
Social Science Core		3
Elective		3
	Hours	**15-16**
Eighth Term		
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
	Hours	**12**
	Total Hours	**120-121**

Chemistry - Pre-Medical Professions Concentration, BS

First Term		**Hours**
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
MATH 1340	College Algebra And Trigonometry	3
ENGL 1110	College Composition I	3
Arts/Humanities Core		3
	Hours	**15**
Second Term		
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
NSM 1500	Building a Career in Science and Math	1
MATH 2600 or MATH 2640	Introduction To Statistics or Statistics for Applied Science	3
CHEM 1910	Survey Of Research	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
SOC 1010	Introduction To Sociology	3
	Hours	**16**
Third Term		
CHEM 2410	Organic Chemistry I	3
CHEM 2480	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis	2
PHYS 2075	General Physics I - Lab	1
PHYS 2070	General Physics I	4
NSM 2000	Professional Career Preparation in Math and Science	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
	Hours	**16**
Fourth Term		
CHEM 2420	Organic Chemistry II	3
CHEM 2490	Organic Chemistry Laboratory II for Majors: Synthesis and Identification	2
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	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**
Fifth Term		
CHEM 3510	Biochemistry I	3
CHEM 3910	Undergraduate Research II	1
Multicultural Non-US Diversity		3
CHEM 3310	Analytical Chemistry	2
BIOL 3010	Molecular Genetics	3
	Hours	**12**
Sixth Term		
CHEM 3520	Biochemistry II	3
CHEM 3560	Biochemistry Laboratory	2
CHEM 3360	Analytical Chemistry Laboratory	2
BIOL 3030	Cell Biology	3
PSY 1010	Principles Of Psychology	3
Multicultural Diversity of US		3
	Hours	**16**
Seventh Term		
CHEM Elective		4
CHEM 4910	Undergraduate Research III	1
BIOL 3070	Human Physiology	3

Electives to Reach 120 Credits	6
Hours	**14**
Eighth Term	
CHEM Elective	4
Art/Humanities Core	3
Electives - to reach 120 hours	9
Hours	**16**
Total Hours	**120**

- 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. The following courses must be included:

Code	Title	Hours
The following courses must be included:		
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: [1]		*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	
CHEM 4920	Readings In Chemistry III	
Total Hours		**22-24**

[1] MBC 3550 and MBC 3310 may be substituted for 3000-level CHEM courses

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 [1]	3
Electives		
CHEM 4210	Environmental Chemistry	3
or CHEE 4110	Green Engineering Applications	
CHEM 3810	Chemistry of Sustainable Energy Resources	3
or CHEE 4120	Biofuels	
or EEES 4220	Environmental Geochemistry	
or EEES 4450		
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		
Total Hours		**21**

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

The Analytical Chemistry Certificate is designed for students in STEM fields to gain specialized expertise in analytical chemistry focusing on laboratory techniques and instrumental analysis skills. The coursework provides the theory and hands-on skills for excelling in the modern laboratory workforce. The certificate is a stackable program for various undergraduate majors, including chemistry, biochemistry, chemical and bioengineering, medicinal and biological chemistry, and other College of Natural Sciences and Mathematics majors

Required Courses

Code	Title	Hours
CHEM 3310	Analytical Chemistry	2
CHEM 3360	Analytical Chemistry Laboratory	2
CHEM 4300	Instrumental Analysis	2
CHEM 4880	Advanced Laboratory III: Instrumental Analysis of Molecules and Materials	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**

No classes used to satisfy the requirements of the Analytical Chemistry Certificate may be taken P/NC

- 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

The Materials Chemistry Certificate is designed for students in STEM fields to gain specialized knowledge in materials chemistry, including materials synthesis, materials processing, general structure/function relationships and nanoscience. The certificate is a stackable program for various undergraduate majors, including chemistry, biochemistry, chemical and bioengineering, medicinal and biological chemistry, and other College of Natural Sciences and Mathematics majors.

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	
Total Hours		**15-16**

No classes used to satisfy the requirements of the Materials Chemistry Certificate may be taken P/NC

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	
	Hours	**7-8**
Second Term		
CHEM 4820	Materials Science II	4
Choose One of the Following		4
CHEM 4800	Advanced Materials Chemistry	
CHEM 4830	Nanomaterials Science	
	Hours	**8**
	Total Hours	**15-16**

- 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)

James Martin-Hayden, undergraduate advisor (geology)
Scott Heckathorn, undergraduate advisor (Environmental Sciences)
Kennedy Doro, 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 students 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 UToledo students in the Department of Environmental Sciences have the opportunity to spend their junior year at Salford University. 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 (Dr. 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. 207)
- BS in Biology with a Concentration in Ecology and Organismal Biology (p. 209)
- BS in Environmental Sciences (p. 211)
- Minor in Environmental Biology (p. 213)
- Minor in Environmental Geosciences (p. 214)
- Minor in Environmental Science (p. 214)
- Combined bachelor's to master's-Environmental Sciences Pipeline Program (p. 211)

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 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 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 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 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 and Visualization
[3 credit hours]
An introductory course in data management for environmental science seniors covering the basics of data management practices and using 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 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, 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.
Corequisites: EEES 4350
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 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 4500 Understanding Environmental Data and Scientific Methods
[3 credit hours]
An introduction to data analysis in environmental science, including the concepts of uncertainty and probability distribution, exploratory data analysis through data visualization, and data analysis as a tool in scientific research.
Prerequisites: EEES 2500 with a minimum grade of C- or CSET 1100 with a minimum grade of C- or MATH 2600 with a minimum grade of C- or MATH 2640 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 4560 The Science of Aquaria
[3 credit hours]
The Science of Aquaria explores the scientific principles behind home aquariums. Students use observational studies to investigate process and causality within these ecosystems. The course focuses on visualizing large-scale environmental processes, such as biochemical cycles, anthropogenic eutrophication, trophic interactions, and biodiversity within the context of a familiar, hands-on system.
Prerequisites: EEES 3050 with a minimum grade of C-
Term Offered: Spring

EEES 4610 Environmental Geophysics
[3 credit hours]
An introduction to basic geophysical concepts, signals, and information content. Course includes an overview of the theory, field application, and interpretation of geophysical methods. Discussion of the applications for characterizing and monitoring environmental systems, including soils, groundwater, and other ecosystem units. Case studies include the use of geophysics for soil, groundwater, archaeological, forensic, engineering, and ecological investigations. The course involves field demonstrations and hands-on exercises on field applications of geophysical techniques.
Prerequisites: MATH 1760 with a minimum grade of C- or MATH 1860 with a minimum grade of C- or PHYS 2080 with a minimum grade of C-
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 landcape-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).

Code	Title	Hours
UToledo Core Curriculum		36
UToledo Multicultural		6
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course within the Program (3 cr hrs)		
Course Requirements for the BA Environmental Studies		
Required Environmental Science courses:		
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
EEES 1020	Introductory Geology Laboratory	1
EEES 2150	Biodiversity	4
EEES 2160	Biodiversity Laboratory	1
EEES 2500	Computer Applications In Environmental Sciences	1
EEES 3050	General Ecology	3
EEES 3060	General Ecology Laboratory	1
EEES 3900	Literature and Communications in the Environmental Sciences (WAC course)	3
EEES 4960	Senior Seminar	1
EEES 4970	Senior Environmental Capstone (OR EEES 4980 Special Topics: BioDesign Challenge)	3
One of the following Earth science courses:		
EEES 3100	Surficial Processes	3
or EEES 3600	Oceanography	
An Internship approved by the Internship Advisor		
EEES 4940	Internship	1
Required Related courses:		
ENGL 2950	Technical Writing	3
MATH 2640	Statistics for Applied Science	3

CHEM 1090	Elementary Chemistry	3
or CHEM 1100	Chemistry And Society	
PSC 4340	Environmental Policy	3
ECON 3240	Environmental Economics	3
or ECON 3270	Natural Resource Economics - WAC	
GEPL 3900	Environmental Planning	3
or PJS 2500	Peace Education Facilitating Learning for Change in Schools and Beyond	
One of the following courses related to communication:		3
COMM 2600 Public Presentations		
ENGL 3050 Persuasive Writing		
ART 2800 Visual Literacy-Data Visualization		
HON 3010 Community Engagement		
The BA Environmental Studies requires a related minor approved by your advisor.		
Common minors include Geography and Planning, and Communications.		
18 hours of courses within the Minor		18
Elective Courses		5
Total Hours		**120**

Combined bachelor's to master's- Geography pipeline program

Undergraduate students accepted to the **Combined bachelor's-environmental studies 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 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) **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.

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**
EEES 2020	Introduction to the Environment: Energy and Climate	3
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
ENGL 1110	College Composition I	3
Cultural Experience		4
Arts/Humanities Core		3
	Hours	**14**
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 2950	Technical Writing	3
Cultural Experience		4
NSM 1500	Building a Career in Science and Math	1
	Hours	**16**
Second Year		
Third Term		
EEES 3100 or EEES 3600	Surficial Processes or Oceanography	3
GEPL 3900	Environmental Planning	3
EEES 2500	Computer Applications In Environmental Sciences	1
CHEM 1100	Chemistry And Society	3
Social Science Core		3
Art/Humanities Core		3
	Hours	**16**
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
US Diversity		3
	Hours	**14**
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
	Hours	**16**

Sixth Term		
ENGL 3050	Persuasive Writing	3
Writing Across the Curriculum		3
Non-US Diversity		3
Minor Course		3
Elective		3
	Hours	**15**
Fourth Year		
Seventh Term		
EEES 4940	Internship	1
PSC 4340	Environmental Policy	3
EEES 4960	Senior Seminar	1
Minor Course		3
Minor Course		3
Elective		3
	Hours	**14**
Eighth Term		
ECON 3240	Environmental Economics	3
EEES 4970	Senior Environmental Capstone	3
Minor Course		3
Electives		6
	Hours	**15**
	Total Hours	**120**

- 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.

Students who wish to use this degree as a pre-professional (pre-med/pre-vet) or graduate school track should strongly consider taking CHEM2420:Organic Chemistry 2 and PHYS2080:General Physics II with PHYS 2085 Lab.

Code	Title	Hours
UToledo Core Curriculum		36
UToledo Multicultural		6
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course within the Program (3 cr)		
Required courses:		
EEES 2150	Biodiversity	4
EEES 2160	Biodiversity Laboratory	1
EEES 3050	General Ecology	3
EEES 3060	General Ecology Laboratory	1
EEES 3900	Literature and Communications in the Environmental Sciences	3
EEES 4150	Evolution	3
Twelve additional hours of advanced elective EEES courses (3000 - 4000 level), including three advanced laboratory courses.		12
Required Related courses:		
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 3010	Molecular Genetics	3
BIOL 3030	Cell Biology	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
Calculus I and II: (MATH 1750 & MATH 1760), or (MATH 1850 & MATH 1860)		7-8
One semester of general physics, either algebra or calculus based, with lab: (PHYS 2070 and PHYS 2075) or (PHYS 2130 and PHYS 2135)		5
ENGL 2950	Technical Writing (Substitute for ENGL 1130 College Composition II)	3
Elective courses		10
Total Hours		**120-121**

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	1
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
	Hours	**15**

Second Term		
EEES 2150	Biodiversity	4
EEES 2160	Biodiversity Laboratory	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
NSM 1500	Building a Career in Science and Math	1
ENGL 2950	Technical Writing	3
	Hours	**14**
Third Term		
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 or MATH 1850	Calculus For The Life Sciences With Applications I or Single Variable Calculus I	4
Arts/Humanities Core		3
	Hours	**15**
Fourth Term		
MATH 1760 or MATH 1860	Calculus For The Life Sciences With 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
	Hours	**15**
Fifth Term		
EEES 3050	General Ecology	3
EEES 3060	General Ecology Laboratory	1
BIOL 3030	Cell Biology	3
US Diversity		3
Elective- WAC		3
Social Science Core		3
	Hours	**16**
Sixth Term		
MATH 2640	Statistics for Applied Science	3
Electives -Major [1]		6
EEES Advanced Lab [2]		1
Electives		6
	Hours	**16**
Seventh Term		
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Non-US Diversity		3
Electives- Major [1]		6
EEES Advanced Lab [2]		1
	Hours	**15**

Eighth Term		
EEES 4150	Evolution	3
EEES Advanced Lab [2]		1
Electives - Major		6
Electives		4
	Hours	**14**
	Total Hours	**120**

[1] Choose from any upper level EEES course (4000 level) for which prerequisites are met.

[2] 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)

NOTE: Students pursuing a BS in Environmental Sciences cannot double major in a BS in Biology with a Concentration in Ecology and Organismal Biology.

For the Bachelor of Science degree in Environmental Sciences (ENSC) The following courses must be included:

Code	Title	Hours
UToledo Core Curriculum [1]		18
UToledo Multicultural		6
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course within the Program (3 cr)		

Course Requirements for the BS Environmental Science		
Required Environmental Science courses:		
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
EEES 1020	Introductory Geology Laboratory	1
EEES 2150	Biodiversity	4
EEES 2160	Biodiversity Laboratory	1
EEES 2500	Computer Applications In Environmental Sciences	1
EEES 2510	Advanced Computer Applications	2
EEES 2760	Methods for Environmental Sciences	3
EEES 3050	General Ecology	3
EEES 3060	General Ecology Laboratory	1
Select one of the following		3
EEES 3100	Surficial Processes	
EEES 3600	Oceanography	
EEES 4240	Soil Science	
EEES 3900	Literature and Communications in the Environmental Sciences (WAC)	3
EEES 4940	Internship	1
EEES 4970	Senior Environmental Capstone	3
EEES 4960	Senior Seminar	1
One advanced EEES laboratory course		3-4
Required Related courses:		
ENGL 2950	Technical Writing (Substitutes for ENGL 1130)	3
MATH 2640	Statistics for Applied Science	3
Take one of these calculus sequences		7-8
MATH 1750 & MATH 1760	Calculus For The Life Sciences With Applications I and Calculus For The Life Sciences With Applications II	
MATH 1850 & MATH 1860	Single Variable Calculus I and Single Variable Calculus II	
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
Take four of the following related courses, including at least one from each of social sciences and humanities		12
Social Science Group		
GEPL 3900	Environmental Planning	
PSC 4340	Environmental Policy	
ECON 3240	Environmental Economics	
ECON 3270	Natural Resource Economics - WAC	
Humanities Group		
REL 2980	Special Topics In Religious Studies (Religion and Environment)	
PHIL 3180	Environmental Ethics	
PJS 2500	Peace Education Facilitating Learning for Change in Schools and Beyond	

Elective courses in the required minor [2]	12
General electives to reach 120 credit hours	7
Total Hours	**120-122**

[1] Core Curriculum credits shown include only courses not required elsewhere in the major or related fields.

[2] **The completion of the Environmental Sciences Major requires a minor approved by your advisor.** Common minors include Environmental Biology (https://catalog.utoledo.edu/undergraduate/natural-sciences-mathematics/environmental-sciences/environmental-biology-minor/), and Geology (https://catalog.utoledo.edu/undergraduate/natural-sciences-mathematics/environmental-sciences/minor-geology/). Other possible minors include the Minor in Renewable Energy (https://catalog.utoledo.edu/undergraduate/natural-sciences-mathematics/physics-astronomy/minor-renewable-energy/) or Minor Green Chemistry and Engineering (https://catalog.utoledo.edu/undergraduate/natural-sciences-mathematics/chemistry-biochemistry/minor-green-chemistry-and-engineering/). A minimum of 12 hours of unique courses not applied to the major must be included in the minor.

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[1]). 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	1
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
	Hours	**15**
Second Term		
NSM 1500	Building a Career in Science and Math	1
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
	Hours	**17**
Second Year		
Third Term		
EEES 2150	Biodiversity	4
EEES 2160	Biodiversity Laboratory	1
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
ENGL 2950	Technical Writing	3
EEES 2760 or EEES 3100	Methods for Environmental Sciences or Surficial Processes	3
	Hours	**16**
Fourth Term		
EEES 2510	Advanced Computer Applications	2
MATH 1760 or MATH 1860	Calculus For The Life Sciences With Applications II or Single Variable Calculus II	3

EEES 3600	Oceanography	3
US Diversity Core		3
Elective		3
	Hours	**14**
Third Year		
Fifth Term		
EEES 3050	General Ecology	3
EEES 3060	General Ecology Laboratory	1
EEES 3900	Literature and Communications in the Environmental Sciences (WAC)	3
MATH 2640	Statistics for Applied Science	3
Non-US Diversity		3
Environmental Biology minor		3
	Hours	**16**
Sixth Term		
GEPL 3900	Environmental Planning	3
PHIL 3180	Environmental Ethics	3
Environmental Biology Minor		3
Social Science core		3
Elective		3
	Hours	**15**
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
	Hours	**14**
Eighth Term		
ECON 3240	Environmental Economics	3
EEES 4960	Senior Seminar	1
Environmental Biology Minor		6
Elective		3
	Hours	**13**
	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.

The Minor in Environmental Biology requires a minimum of 21 hours of which 12 must be unique to the minor.

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		3
EEES 4260		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	Special Topics: Advanced Undergraduate	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.

Students may not take any courses used to fulfill the requirements of the Minor in Environmental Biology as P/NC.

- 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 Geosciences

REQUIRED COURSES

Code	Title	Hours
EEES 1020	Introductory Geology Laboratory	1
EEES 2100	Fundamentals Of Geology	4

Code	Title	Hours
CHOOSE AT LEAST 16 UNIQUE CREDITS FROM THIS LIST OF COURSES to make up a minimum of 21 credit hours.		
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 3600	Oceanography	3
EEES 4100	Glacial and Quaternary Geology	3
EEES 4150	Evolution	3
EEES 4220	Environmental Geochemistry	3
EEES 4410	Hydrogeology	3
EEES 4480	GIS Applications in ENSC	3
EEES 4490	Remote Sensing of The Environment	4
EEES 4610	Environmental Geophysics	3
EEES 4910	Directed Research [1]	1-5
EEES 4980	Special Topics: Advanced Undergraduate [1]	3
EEES 4990	Independent Study: Advanced Undergraduate [1]	1-4

[1] The use of EEES 4910, EEES 4980, EEES 4990 must be approved by the student's advisor.

Students may not take any courses used to fulfill the requirements of the Minor in Environmental Geology as P/NC.

- PLO 1. Students will be able to explain the theory of plate tectonics and the concept of deep time.
- PLO 2. Students will be able to describe and characterize the layered structure of the earth.
- PLO 3. Students will be able to explain various short-and long-term geologic processes to a general audience.
- PLO 4. Students will be able to recognize that geologic processes are controlled by the complex interactions of the four major earth systems: geosphere, atmosphere, hydrosphere, and biosphere.
- PLO 5. Students will be able to analyze geology and topographic maps or other images to interpret the processes and interactions among the primary Earth systems that produce features on the Earth surface.
- PLO 6. Students will be able to evaluate environmental issues in the context of geological principles, and to design practical potential solutions.
- PLO 7. Students will be able to apply scientific reasoning to a variety of geological topics.

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.

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
Total Hours		**21**

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.

Students may not take any courses used to fulfill the requirements of the Minor in Environmental Sciences as P/NC.

- 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.

Department of Mathematics and Statistics

Ekaterina Shemyakova, Chair
Hiba Fayoumi, Undergraduate Advisor – Pure Mathematics, Applied Mathematics, Mathematics with Computer Science, and Math Minor
Zhiwei Chen, Undergraduate Advisor - Actuarial Science
Rong Liu, Undergraduate Advisor - Statistics

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 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 and Programs Offered

- BS in Mathematics (p. 221)
- Minor in Mathematics (p. 230)

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
[5 credit hours]
Principles of elementary number theory, base systems, foundations of arithmetic operations, fractions, decimals, integers, rational numbers, real numbers, algebraic thinking 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
[4 credit hours]
Foundations of ratios, proportional relationships, functions, measurement, geometry, statistics and probability with a focus on reasoning and real-world problem solving. Course is not applicable toward the undergraduate Mathematics major requirements.
Prerequisites: MATH 1210 with a minimum grade of C-
Term Offered: Spring, 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.
Corequisites: MATH 1320
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]
Exponential, logarithmic and trigonometric functions, limits and continuity, rates of change, differentiation, derivative applications and integration. 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]
Trigonometric identities, equations and graphs, calculus of trigonometric functions, integral applications, integration techniques, differential equations and probability. 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 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, Summer, 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
[4 credit hours]
Differential calculus of algebraic and trigonometric functions, including limits, curve sketching, motion, maxima/minima, related rates, and 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 2870 Introduction to Differential Equations and Linear Algebra for Engineers
[4 credit hours]
An introduction to principles of matrix algebra and the analysis and solution of ordinary differential equations with an emphasis on engineering applications
Prerequisites: MATH 1860 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]
Short-term insurance and reinsurance coverages; severity, frequency and aggregate models; parametric estimation; introduction to credibility; pricing and reserving for short-term insurance coverages; option pricing fundamentals.
Prerequisites: MATH 4680 (may be taken concurrently) with a minimum grade of C-
Term Offered: Fall

MATH 4770 Actuarial Mathematics II
[3 credit hours]
Long-term insurance coverages and retirement financial security programs, mortality models, present value random variables for long-term insurance coverages, premium and policy value calculation for long-term insurance coverages.
Prerequisites: MATH 4760 (may be taken concurrently) 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 3190 with a minimum grade of D-
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 Rn; 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

1. **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.		9
Total Hours		**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 is a specific related area must be included. No classes used to satisfy the requirements of the Mathematics major may be taken P/NC.

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.

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 is a specific related area must be included.

Mathematics - Pure Mathematics Concentration

Code	Title	Hours
UToledo Core Curriculum		36
UToledo Multicultural		6
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course within the Program (3 cr)		
Mathematics Requirements		
MATH 1860	Single Variable Calculus II	4
MATH 1890	Elementary Linear Algebra	3
or MATH 2890	Numerical Methods And Linear Algebra	
MATH 2890	Numerical Methods And Linear Algebra	3
MATH 2850	Elementary Multivariable Calculus	4
MATH 2190	Foundations of Mathematics (Both options are WAC)	3
or MATH 3190	Introduction To Mathematical Analysis	
Required Math courses for the Pure Mathematics Concentration		
MATH 2860	Elementary Differential Equations	3
MATH 4330	Abstract Algebra I	3
MATH 4820	Introduction To Real Analysis I	3
MATH 4880	Complex Variables	3
Select one of the following		3
MATH 4300	Linear Algebra I	
MATH 4450	Introduction To Topology I	
MATH 4540	Classical Differential Geometry I	
Select one of the following		3
MATH 4340	Abstract Algebra II	
MATH 4830	Introduction To Real Analysis II	
Two advanced MATH courses for 6 credits at the 3000 or 4000 level approved by the advisor		6
Elective Courses from Related Areas:		
Three courses from any STEM area		9
An additional 24 credit hours of related-area courses		24
Additional general electives		2
Total Hours		**120**

RELATED COURSES IN BACHELOR OF SCIENCE

Three courses from any STEM area plus 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.

Mathematics - Applied Mathematics Concentration

Code	Title	Hours
UToledo Core Curriculum		36
UToledo Multicultural		6

College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course within the Program		
Course Requirements for BS Mathematics		
Required Math courses:		
MATH 1860	Single Variable Calculus II	4
MATH 1890	Elementary Linear Algebra	3
or MATH 2890	Numerical Methods And Linear Algebra	
MATH 2850	Elementary Multivariable Calculus	4
MATH 2190	Foundations of Mathematics (Both 2190 & 3190 are WAC)	3
or MATH 3190	Introduction To Mathematical Analysis	
Required Math courses for the Applied Mathematics Concentration		
MATH 3320	Introduction To Abstract Algebra	3
or MATH 4330	Abstract Algebra I	
MATH 2860	Elementary Differential Equations	3
MATH 4300	Linear Algebra I	3
or MATH 4350	Applied Linear Algebra	
MATH 4820	Introduction To Real Analysis I	3
or MATH 4880	Complex Variables	
MATH 4710	Methods Of Numerical Analysis I	3
MATH 4720	Methods Of Numerical Analysis II	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	
One MATH elective course at the 3000 or 4000 level approved by the advisor.		3
Elective Courses from Related Areas:		
Three courses from any STEM area		9
An additional 24 credit hours of related-area courses		24
Additional discretionary electives		5
Total Hours		**120**

RELATED COURSES IN BACHELOR OF SCIENCE

Three courses from any STEM area plus 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.

Mathematics - Statistics Concentration

Code	Title	Hours
UToledo Core Curriculum		36
UToledo Multicultural		6
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course within the Program (3 cr)		
Mathematics Requirements		
MATH 1860	Single Variable Calculus II	4
MATH 1890	Elementary Linear Algebra	3
or MATH 2890	Numerical Methods And Linear Algebra	
MATH 2850	Elementary Multivariable Calculus	4
MATH 2190	Foundations of Mathematics (Both options are WAC)	3
or MATH 3190	Introduction To Mathematical Analysis	
Statistics Concentration Requirements		
MATH 3610	Statistical Methods I	3
MATH 3620	Statistical Methods II	3
MATH 4350	Applied Linear Algebra	3
MATH 4600	Advanced Statistical Methods I	3

MATH 4610	Applications Of Statistics II	3
MATH 4680	Introduction To Theory Of Probability	3
MATH 4690	Introduction To Mathematical Statistics	3
MATH 2860 or one advanced MATH elective course for 3 credits at the 3000 or 4000 level approved by the advisor.		
Elective Courses from Related Areas:		
Three courses from any STEM area		9
An additional 24 credit hours of related-area courses		24
Additional general electives		8
Total Hours		**120**

RELATED COURSES IN BACHELOR OF SCIENCE

Three courses from any STEM area plus 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 5600Advanced 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 - Computer Science Concentration

Code	Title	Hours
UToledo Core Curriculum		36
UToledo Multicultural		6
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course within the Program (3 cr)		
Mathematics Requirements		
MATH 1860	Single Variable Calculus II	4
MATH 1890	Elementary Linear Algebra	3
or MATH 2890	Numerical Methods And Linear Algebra	
MATH 2850	Elementary Multivariable Calculus	4
MATH 2190	Foundations of Mathematics (Both options are WAC)	3
or MATH 3190	Introduction To Mathematical Analysis	
Required Math Courses for the Computer Science Concentration		
MATH 2860	Elementary Differential Equations	3
MATH 4380	Discrete Structures And Analysis Of Algorithms	3
MATH 4710	Methods Of Numerical Analysis I	3
MATH 3320	Introduction To Abstract Algebra	3
or MATH 4330	Abstract Algebra I	
MATH 4820	Introduction To Real Analysis I	3
or MATH 4880	Complex Variables	
Select one of the following		3
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		6
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.		18
Three courses from any STEM area		9
Related field or general electives		11
Total Hours		**120**

RELATED COURSES IN BACHELOR OF SCIENCE

Three courses from any STEM area plus 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 BACHELOR'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 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) 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.

Mathematics - Actuarial Sciences Concentration

Code	Title	Hours
UToledo Core Curriculum		36
UToledo Multicultural		6
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course within the Program (3 cr)		
Mathematics Requirements		
MATH 1890	Elementary Linear Algebra	3
or MATH 2890	Numerical Methods And Linear Algebra	
MATH 2850	Elementary Multivariable Calculus	4
MATH 2190	Foundations of Mathematics (both options are WAC)	3
or MATH 3190	Introduction To Mathematical Analysis	
MATH 1860	Single Variable Calculus II	4
Actuarial Science Concentration Requirements		
MATH 3610	Statistical Methods I	3
MATH 3620	Statistical Methods II	3
MATH 2860	Elementary Differential Equations	3
MATH 4620	Theory Of Interest	3
MATH 4680	Introduction To Theory Of Probability	3
MATH 4690	Introduction To Mathematical Statistics	3
MATH 4760	Actuarial Mathematics I	3
MATH 4770	Actuarial Mathematics II	3
Required Related courses:		
ECON 1150	Principles Of Macroeconomics	3
ECON 1200	Principles Of Microeconomics	3
BUAD 1020	Micro-Computer Applications In Business	3
BUAD 2040	Financial Accounting Information	3
BUAD 2050	Accounting For Business Decision-Making	3
BUAD 3040	Principles Of Financial Management	3
FINA 3600	Risk Management	3
INFS 3150	Fundamentals of Python in Business	3
One MATH elective course at the 3000 or 4000 level approved by the advisor		3
Elective Courses from Related Areas:		11
Total Hours		**120**

RELATED COURSES IN BACHELOR OF SCIENCE

Three courses from any STEM area and additional 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 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) MATH 5600Advanced 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.

BACHELOR OF SCIENCE IN MATHEMATICS

- Pure Mathematics Concentration (p. 226)
- Applied Mathematics Concentration (p. 226)
- Statistics Concentration (p. 228)
- Mathematics With Computer Science Concentration (p. 227)
- Actuarial Sciences Concentration (p. 229)

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
MATH 1850	Single Variable Calculus I	4
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
ENGL 1110	College Composition I	3
Natural Sciences Core		4
Natural Science Core Laboratory		1
	Hours	**13**
Second Term		
MATH 1860	Single Variable Calculus II	4
NSM 1500	Building a Career in Science and Math	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		3
Social Sciences Core		3
Diversity of US		3
	Hours	**17**
Third Term		
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
STEM Elective		4
	Hours	**17**
Fourth Term		
MATH 3320	Introduction To Abstract Algebra [1]	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
	Hours	**13**
Fifth Term		
MATH 4330 or MATH 4820	Abstract Algebra I or Introduction To Real Analysis I	3
STEM Elective		3
Arts/Humanities Core		3
Elective		3
Related Elective		3
	Hours	**15**
Sixth Term		
MATH 4880	Complex Variables	3
MATH 4340 or MATH 4830	Abstract Algebra II or Introduction To Real Analysis II	3
Social Sciences Core/STEM Elective		6
Elective		3
	Hours	**15**
Seventh Term		
MATH 4820 or MATH 4330	Introduction To Real Analysis I or Abstract Algebra I	3
Select one of the folowing:		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
	Hours	**15**
Eighth Term		
Advanced Math Elective		3
Elective [1]		3
Related Electives		9
	Hours	**15**
	Total Hours	**120**

For students in the BS to MS program, consult your advisor for the exact sequencing of courses and specific graduate courses that will apply to the BS degree, and the graduate catalog for the MS program of study.

[1] 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.

First Term		Hours
MATH 1850	Single Variable Calculus I	4
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
ENGL 1110	College Composition I	3
Natural Sciences Core		4

Natural Sciences Laboratory		1
	Hours	**13**
Second Term		
MATH 1860	Single Variable Calculus II	4
NSM 1500	Building a Career in Science and Math	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Sciences Core		4
Social Sciences Core		3
Diversity of US		3
	Hours	**18**
Third Term		
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
STEM Elective		3
	Hours	**16**
Fourth Term		
MATH 2860	Elementary Differential Equations	3
MATH 3320	Introduction To Abstract Algebra (or Related Field or Elective) [1]	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
	Hours	**15**
Fifth Term		
MATH 4710	Methods Of Numerical Analysis I	3
MATH 4330	Abstract Algebra I (or Related Field or Elective)	3
STEM Elective		4
Related Field or Elective		3
	Hours	**13**
Sixth Term		
MATH 4720	Methods Of Numerical Analysis II	3
MATH 4880 or MATH 4820	Complex Variables or Introduction To Real Analysis I	3
Social Sciences Core		3
STEM Elective		3
Elective		3
	Hours	**15**
Seventh Term		
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 4350 or MATH 4300	Applied Linear Algebra or Linear Algebra I	3
Related Field or Elective		3
Related Field or Elective		3
	Hours	**15**
Eighth Term		
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
	Hours	**15**
	Total Hours	**120**

For students in the BS to MS program, consult your advisor for the exact sequencing of courses and specific graduate courses that will apply to the BS degree, and the graduate catalog for the MS program of study.

[1] 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.

First Term		**Hours**
MATH 1850	Single Variable Calculus I	4
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
ENGL 1110	College Composition I	3
Natural Science Core		4
Natural Science Core Laboratory		1
	Hours	**13**
Second Term		
MATH 1860	Single Variable Calculus II	4
NSM 1500	Building a Career in Science and Math	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Natural Science Core		4
Social Science Core		3
Diversity of US		3
	Hours	**18**
Third Term		
MATH 2850	Elementary Multivariable Calculus	4
MATH 3190 or MATH 2190	Introduction To Mathematical Analysis or Foundations of Mathematics	3

Non-US Diversity		3
STEM Elective		3
Arts/Humanities Core		3
	Hours	**16**
Fourth Term		
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
	Hours	**15**
Fifth Term		
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
STEM Elective		3
EECS Elective		3
	Hours	**12**
Sixth Term		
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
Elective		3
	Hours	**15**
Seventh Term		
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
STEM Elective		3
	Hours	**16**
Eighth Term		
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
	Hours	**15**
	Total Hours	**120**

For students in the BS to MS program, consult your advisor for the exact sequencing of courses and specific graduate courses that will apply to the BS degree, and the graduate catalog for the MS program of study.

Bachelor of Science in Mathematics: Concentration: Statistics

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

First Term		**Hours**
MATH 1850	Single Variable Calculus I	4
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
ENGL 1110	College Composition I	3
Natural Sciences Core		4
Natural Sciences Laboratory		1
	Hours	**13**
Second Term		
MATH 1860	Single Variable Calculus II	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
NSM 1500	Building a Career in Science and Math	1
Natural Sciences Core		4
Social Science Core		3
Diversity of US		3
	Hours	**18**
Third Term		
MATH 2850	Elementary Multivariable Calculus	4
MATH 3190 or MATH 2190	Introduction To Mathematical Analysis or Foundations of Mathematics	3
MATH 3610	Statistical Methods I	3
Non-US Diversity		3
STEM Elective		3
	Hours	**16**
Fourth Term		
MATH 1890 or MATH 2890	Elementary Linear Algebra or Numerical Methods And Linear Algebra	3
MATH 3620	Statistical Methods II	3
Arts/Humanities Core		3
Social Sciences Core		3
STEM Elective		4
	Hours	**16**
Fifth Term		
MATH 4680	Introduction To Theory Of Probability	3

STEM Elective		3
Arts/Humanities Core		3
Related Field or Elective		3
Related Field or Elective		3
	Hours	**15**
Sixth Term		
MATH 4690	Introduction To Mathematical Statistics	3
Elective		3
Related Field or Elective		3
Related Field or Elective		3
Related Field or Elective		3
	Hours	**15**
Seventh Term		
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
	Hours	**15**
Eighth Term		
MATH 4350	Applied Linear Algebra	3
MATH 4610	Applications Of Statistics II	3
Related Field or Elective		3
Related Field or Elective		3
	Hours	**12**
	Total Hours	**120**

For students in the BS to MS program, consult your advisor for the sequence of courses and specific graduate courses that will apply to the BS degree, and the graduate catalog for the MS program of study.

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		**Hours**
MATH 1860	Single Variable Calculus II	4
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
ENGL 1110	College Composition I	3
ECON 1150	Principles Of Macroeconomics	3
Non-US Diversity		3
	Hours	**14**
Second Term		
MATH 2850	Elementary Multivariable Calculus	4
MATH 1890 or MATH 2890	Elementary Linear Algebra or Numerical Methods And Linear Algebra	3
NSM 1500	Building a Career in Science and Math	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
ECON 1200	Principles Of Microeconomics	3
BUAD 1020	Micro-Computer Applications In Business	3
	Hours	**17**
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
	Hours	**17**
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
	Hours	**15**
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
STEM Elective		3
	Hours	**15**
Sixth Term		
MATH 3620	Statistical Methods II	3
BUAD 3040	Principles Of Financial Management	3
Elective		3
Diversity of US		3
STEM Elective		3
	Hours	**15**
Seventh Term		
MATH 4760	Actuarial Mathematics I	3
FINA 3600	Risk Management	3
Related Field or Elective		3
STEM Elective		3
	Hours	**12**
Eighth Term		
MATH 4770	Actuarial Mathematics II	3
INFS 3150	Fundamentals of Python in Business	3

Related Field or Elective	9
Hours	**15**
Total Hours	**120**

[1] Actuarial Science students need to start in Calculus II or may take MATH 2850 in the summer.

For students in the BS to MS program, consult your advisor for the exact sequencing of courses and specific graduate courses that will apply to the BS degree, and the graduate catalog for the MS program of study.

- 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 1860	Single Variable Calculus II	4
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
Total Hours		**22**

No classes used to satisfy the requirements of the Mathematics minor may be taken P/NC

Department of Molecular, Cellular and Developmental Biology

Song-Tao Liu, Chair
William Taylor, Associate Chair
Scott Crawley, 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 Molecular, Cellular and Developmental Biology 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 Molecular, Cellular and Developmental Biology 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 and medicine.

Degrees Offered

The Department of Molecular, Cellular and Developmental Biology 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. Another accelerated pipeline program offers combined BS in Biology + MS Biology - Cell and Molecular Biology degrees.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 AND CCP

- 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 Molecular, Cellular and Developmental Biology. CCP credits are also recognized, consult with academic advisors for guidance.

Junior Year Studies in England for Biology Majors

The Department of Molecular, Cellular and Developmental Biology 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 Molecular, Cellular and Developmental Biology. 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 and Programs Offered

- BA in Biology (p. 234)
- BS in Biology (p. 237)
- BS in Medical Laboratory Science (p. 246)
- BS in Neuroscience (p. 248)
- Certificate in Biological Laboratory Technician (p. 249)
- Certificate in Clinical Microbiology for Medical Laboratory Science (p. 250)
- Minor in Biology (p. 250)

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 and Clinical Significance
[2-3 credit hours]
Provides hands-on, authentic research experience and a comprehensive understanding of the scientific process and clinical significance. It may be repeated once for credit, and 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: Spring, 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 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, Fall

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, Fall

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 Molecular, Cellular and Developmental Biology 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 Molecular, Cellular and Developmental Biology 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 Molecular, Cellular and Developmental Biology 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
Biology-Neuroscience Concentration, BA (p. 235)

Biology, BA

The following courses are required for the BA-Biology major, with emphasis on Cell and Molecular Biology.

Code	Title	Hours
Gen Ed Requirements for Biology Majors (BA) (41~47 credits total)		
UToledo Core Curriculum (Skills, Distributive and Multicultural) 36-42 credits total:		
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
MATH 2600	Introduction To Statistics	3
or MATH 2640	Statistics for Applied Science	
Arts & Humanities (2 disciplines)		6
Social Sciences (2 disciplines)		6
Natural Sciences (2 electives, 1 with lab) 6 credits		
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1280	General Chemistry Lab I	1
Electives from MATH or Distributive Category (9 credits)		
CHEM 1230	General Chemistry I	4
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
One Multicultural: Non U.S. Diversity (0~3 credits) May be satisfied by certain Humanities & Social Sciences elective courses		3
One Multicultural: U.S. Diversity (0~3 credits) May be satisfied by certain Humanities & Social Sciences elective courses		3
Other Gen Ed courses required for Biology Majors:		
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
BA in Biology Major Course Requirements (30 credits total)		
College of NSM Degree Requirements:		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
Required Biology courses:		
BIOL 3010	Molecular Genetics	3
BIOL 3030	Cell Biology	3
One WAC course within the Program (3 cr hrs)		
BIOL 4700	Biological Literature And Communication ((WAC course))	3
BIOL 3070	Human Physiology	3
or BIOL 3090	Developmental Biology	
Advanced elective Biology courses:		
An additional 11 hours of 3000- or 4000-level Biology courses		11
A maximum of 3 credit hours of BIOL 4910 not applied to Departmental Honors may be used to fulfill the advanced elective credits.		
Required Related courses:		
CHEM 2410	Organic Chemistry I	3

CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
No classes used to satisfy the requirements of the BA Biology, including related courses, may be taken P/NC, with the exceptions of BIOL 4910, BIOL 4950, and BIOL 4990.		
Electives to complete 120 credit hours and additional Certification (43~49 credits depending on the GenEd courses taken):		**43**
The completion of the BA Biology major further recommends another major, minor(s), or certificate(s) in an area relevant to their chosen career. This additional certification must be approved by a Department Academic Advisor.		
Total Hours		**120**

Biology-Neuroscience Concentration, BA

The following courses are required for BA-Biology Neuroscience Concentration.

Code	Title	Hours
Gen Ed Requirements for Biology Majors (BA) (41-47 credits total)		
UToledo Core Curriculum (Skills, Distributive and Multicultural) 36-42 credits total		
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
MATH 2600	Introduction To Statistics	3
or MATH 2640	Statistics for Applied Science	
Arts and Humanities (2 disciplines)		6
Social Sciences (2 disciplines)		6
Natural Sciences (2 electives, 1 with lab) 6 credits		
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
CHEM 1280	General Chemistry Lab I	1
Electives from MATH or Distributive Category (9 credits)		
CHEM 1230	General Chemistry I	4
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
One Multicultural: Non U.S. Diversity (0~3 credits) May be satisfied by certain Humanities & Social Sciences elective courses		3
One Multicultural: U. S. Diversity (0~3 credits) May be satisfied by certain Humanities & Social Sciences elective courses		3
Other Gen Ed courses required for Biology Majors		
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
BA in Biology Major Course Requirements (30 credits total)		
College of NSM Degree Requirements:		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
Required Biology Courses:		
BIOL 3010	Molecular Genetics	3
BIOL 3030	Cell Biology	3
One WAC course within the Program (3 cr hrs)		
BIOL 4700	Biological Literature And Communication	3
BIOL 3070	Human Physiology	3
or BIOL 3090	Developmental Biology	
An additional 11 hours of 3000- or 4000-level Biology courses		11
A maximum of 3 credit hours of BIOL 4910 not applied to Departmental Honors may be used to fulfill the advanced elective credits		
Required Related Courses:		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
Required courses for the Neuroscience Concentration (15 credits):		
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:		
NSCI 2050	Fundamentals of Neuroscience I	3
NSCI 2050	Fundamentals of Neuroscience II	3
BIOL 3070	Human Physiology If a student opted for BIOL3070 for their major, they will take BIOL3090 for theconcentration, and vice versa.	3
or BIOL 3090	Developmental Biology	
BIOL 4910	Undergraduate Research (in a section with a neuroscience focus)	3
or INDI 4000	Directed Research in Human Health Sciences	
PSY 3400	Cognitive Neuropsychology (or ANY NSCI course numbered 4000 or above) [1]	3
or PSY 3610	Behavioral Neuroscience	
Students in the Neuroscience Concentration need to take BIOL 4700 and BIOL 4910/INDI 4000 in sections with a neuroscience focus; BIOL4700 (neuroscience focus) is usually offered only one semester a year.		
Electives to bring total credits to 120 (28~34 credits depending on GenEd courses taken)		**28**
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.		
Total Hours		**120**

[1] PSY 3400 requires PSY 2400 and PSY 1010 as prerequisites

Biology, BA (p. 234)
Biology-Neuroscience Concentration, BA (p. 235)

Biology, BA

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

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	1

ENGL 1110	College Composition I	3
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
Arts/Humanities Core		3
MATH 1320 or MATH 1330	College Algebra or Trigonometry	3
	Hours	**15**
Second Term		
NSM 1500	Building a Career in Science and Math	1
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
	Hours	**14**
Third Term		
NSM 2000	Professional Career Preparation in Math and Science	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
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
Arts and Humanities Core		3
Course in area of additional certification or electives		3
	Hours	**16**
Fourth Term		
BIOL 3010	Molecular Genetics	3
Social Sciences Core		3
Courses in area of additional certification or electives		9
	Hours	**15**
Fifth Term		
BIOL 3030	Cell Biology	3
Courses in area of additional certification or electives		12
	Hours	**15**
Sixth Term		
BIOL 3070 or BIOL 3090	Human Physiology or Developmental Biology	3
Diversity of US		3
Courses in area of additional certification or electives		7
Social Science Core		3
	Hours	**16**
Seventh Term		
MATH 2600 or MATH 2640	Introduction To Statistics or Statistics for Applied Science	3
BIOL 3000-4000 Level Electives		6
Non-US Diversity		3
Course in area of additional certification or electives		3
	Hours	**15**
Eighth Term		
BIOL 4700	Biological Literature And Communication (WAC)	3
BIOL 3000-4000 Level Elective		6
Course in area of additional certification or electives		5
	Hours	**14**
	Total Hours	**120**

Biology-Neuroscience Concentration, 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	1
ENGL 1110	College Composition I	3
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
Arts/Humanities Core		3
MATH 2600 or MATH 2640	Introduction To Statistics or Statistics for Applied Science	3
	Hours	**15**
Second Term		
NSM 1500	Building a Career in Science and Math	1
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
Social Sciences Core		3
	Hours	**17**
Third Term		
NSM 2000	Professional Career Preparation in Math and Science	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
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
Course in area of additional certification or electives		5
	Hours	**15**
Fourth Term		
BIOL 3010	Molecular Genetics	3
Social Sciences Core		3

Courses in area of additional certification or electives		10
	Hours	**16**
Fifth Term		
BIOL 3030	Cell Biology	3
Courses in area of additional certification or electives		12
	Hours	**15**
Sixth Term		
BIOL 3070 or BIOL 3090	Human Physiology or Developmental Biology	3
Diversity of US		3
BIOL 2050	Fundamentals of Neuroscience I	3
Arts and Humanities Core		3
Courses in area of additional certification or electives		3
	Hours	**15**
Seventh Term		
NSCI 3050	Fundamentals of Neuroscience II	3
BIOL 3070 or BIOL 3090	Human Physiology or Developmental Biology	3
Courses in area of additional certification or electives		6
	Hours	**12**
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
PSY 3610 or PSY 3400	Behavioral Neuroscience or Cognitive Neuropsychology	3
OR		
ANY NSCI course numbered 4000 or above		0
Non-US Diversity		3
Courses in area of additional certification or electives		3
	Hours	**15**
	Total Hours	**120**

- PLO 1. Students will demonstrate a thorough understanding of fundamental concepts of cell and molecular biology, chemistry, biochemistry, evolutionary biology, and physiology.
- PLO 2. Students will demonstrate a thorough understanding of fundamental concepts in a second area of specialization (certificate or minor) of their own choosing.
- PLO 3. Students will demonstrate the ability to use fundamental concepts of biological science to analyze and evaluate biological observations.
- PLO 4. Students will act effectively as a member of a team.
- PLO 5. Students will understand and comply with ethical behavior in coursework, research, and the use of biological information.
- PLO 6. Students will be able to explain, evaluate, and effectively interpret claims, theories, and assumptions in the Biological Sciences, including those presented in the scientific literature. Students will be able to communicate scientific arguments and ideas clearly and explicitly through writing and speech.
- PLO 7. Students will be able to perform effective primary literature searches and identify relevant primary literature. (Specialized knowledge)
- PLO 8. Students will demonstrate the ability to incorporate diverse view and perspectives.
- PLO 9. Students will demonstrate competence in cultural diversity.

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 - Bioinformatics Concentration, BS
- Biology - Cell and Molecular Biology Concentration, BS
- Biology - Neuroscience Concentration, BS
- Biology - Pre-Medical Studies Concentration, BS

Biology -Bioinformatics Concentration, BS (p. 237)
Biology - Cell and Molecular Biology Concentration, BS (p. 239)
Biology -Neuroscience Concentration, BS (p. 240)
Biology - - Pre-Medical Studies Concentration, BS

Biology -Bioinformatics Concentration, BS

The following courses are required for the BS Biology- Bioinformatics Concentration. Note that this is part of a BS-MS pipeline program.

Code	Title	Hours
Gen Ed requirements for BS-Biology BIOI concentration (55~61 credits total)		
UToledo Core Curriculum (Skills, Distributive, and Multicultural) 36-42 credits total		
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
MATH 2600	Introduction To Statistics	3
or MATH 2640	Statistics for Applied Science	
Arts & Humanities (2 disciplines)		6
Social Sciences (2 disciplines)		6
Natural Sciences (2 disciplines, 1 with lab) 6 credits		
PHYS 2070 & PHYS 2075	General Physics I and General Physics I - Lab	5
or PHYS 2130 & PHYS 2135	Physics For Science And Engineering Majors I and Physics for Science and Engineering Majors I - Lab	
CHEM 1280	General Chemistry Lab I	1
Electives from MATH or Distributive Category (9 credits)		
CHEM 1230	General Chemistry I	4

CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
One Multicultural: Non U.S. Diversity (0~3 credits) May be satisfied by certain Humanities & Social Sciences elective courses		3
One Multicultural: U.S. Diversity (0~3 credits) May be satisfied by certain Humanities & Social Sciences elective courses		3
Other Gen Ed courses required for Biology Majors		
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
MATH 1750	Calculus For The Life Sciences With Applications I	4
or MATH 1760	Calculus For The Life Sciences With Applications II	
or MATH 1850	Single Variable Calculus I	
or MATH 1860	Single Variable Calculus II	
PHYS 2080 & PHYS 2085	General Physics II and General Physics II - Lab	5
or PHYS 2140 & PHYS 2145	Physics For Science And Engineering Majors II and Physics for Science and Engineering Majors II - Lab	
BS-Biology Major Course Requirements (30 credits total)		
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
Required Biology courses:		
BIOL 3010	Molecular Genetics	3
BIOL 3030	Cell Biology	3
BIOL 3020	Molecular Genetics Laboratory	2
or BIOL 3040	Cell Biology Laboratory	
Choose two of the following three courses		6
BIOL 3070	Human Physiology	
or BIOL 309C	Developmental Biology	
or BIOL 403C	Microbiology	
One WAC course within the Program (3 cr)		
BIOL 4700	Biological Literature And Communication	3
Required non-Biology Courses		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
CHEM 2420	Organic Chemistry II	3
CHEM 3510	Biochemistry I	3
Courses required for BIOI concentration (16 credits)		

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 three BIPG 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	Fund Bioinformatics Proteomics	3
BIPG 5200	Statistical Methods in Bioinformatics	3
BIPG 6500	Applied Statistics for Bioinformatics	3
BIOL 4910	Undergraduate Research [1, 2]	1
BIOL 4010	Molecular Biology	3
or BIOL 4110	Human Genetics and Genomics	
or BIOL 4210	Molecular Basis of Disease	
CHEM 3520	Biochemistry II	3
Electives to complete 120 credit hours (13~19 credits depending on the GenEd courses taken)		*13*
Total Hours		**120**

1 Students taking the concentration in Bioinformatics must take BIOL 3020 (Molecular Genetics Laboratory). Two laboratory or field experiences are required. BIOL 4910 may fulfill the second lab or field experience requirement.

2 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).

Combined bachelor's to master's- SM-BIOL-BS-BIOI: Biology - Bioinformatics Concentration to MD-BIMS-MS-BIPG : Biomedical Science: Bioinformatics and Proteomics-Genomic, MSBS

Undergraduate students accepted to the **M-BIOL-BS-BIOI: Biology - Bioinformatics Concentration** option will be admitted to the **MD-BIMS-MS-BIPG: Biomedical Science: Bioinformatics and Proteomics-Genomic, MSBS** 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) **BIPG 5100 Fundamentals of Bioinformatics (3 credits), BIPG 5200 Statistical Methods in Bioinformatics (3 credits), BIPG 6100 Bioinformatic Computation (3 credits) courses** 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.

Biology - Cell and Molecular Biology Concentration, BS

The following courses are required for the BS Biology - Cell and Molecular Biology Concentration:

Code	Title	Hours
Gen Ed requirements for BS-Biology Cell and Molecular Biology concentration (55~61 credits total)		
UToledo Core Curriculum (Skills, Distributive, and Multicultural) 36-42 credits total		
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
MATH 2600	Introduction To Statistics	3
or MATH 2640	Statistics for Applied Science	
Arts & Humanities (2 disciplines)		6
Social Sciences (2 disciplines)		6
Natural Sciences (2 disciplines, 1 with lab) 6 credits		
PHYS 2070 & PHYS 2075	General Physics I and General Physics I - Lab	5
or PHYS 2130 & PHYS 2135	Physics For Science And Engineering Majors I and Physics for Science and Engineering Majors I - Lab	
CHEM 1280	General Chemistry Lab I	1
Electives from MATH or Distributive Category (9 credits)		
CHEM 1230	General Chemistry I	4
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
One Multicultural: Non U.S. Diversity (0~3 credits) May be satisfied by certain Humanities & Social Sciences elective courses		3
One Multicultural: U.S. Diversity (0~3 credits) May be satisfied by certain Humanities & Social Sciences elective courses		3
Other Gen Ed courses required for Biology Majors		
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
MATH 1750	Calculus For The Life Sciences With Applications I	4
or MATH 1760	Calculus For The Life Sciences With Applications II	
or MATH 1850	Single Variable Calculus I	
or MATH 1860	Single Variable Calculus II	
PHYS 2080 & PHYS 2085	General Physics II and General Physics II - Lab	5
or PHYS 2140 & PHYS 2145	Physics For Science And Engineering Majors II and Physics for Science and Engineering Majors II - Lab	
BS-Biology Major Course Requirements (30 credits total)		
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
Required Biology courses:		
BIOL 3010	Molecular Genetics	3
BIOL 3030	Cell Biology	3
BIOL 3020	Molecular Genetics Laboratory	2
or BIOL 3040	Cell Biology Laboratory	
Choose two of the following three courses		6
BIOL 3070	Human Physiology	
BIOL 3090	Developmental Biology	
BIOL 4030	Microbiology	
One WAC course within the Program (3 cr)		
BIOL 4700	Biological Literature And Communication (WAC)	3
Required non-Biology Courses		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
CHEM 2420	Organic Chemistry II	3
CHEM 3510	Biochemistry I	3
Courses required for CLMB concentration		
A minimum of nine hours of advanced elective BIOL courses (3000 - 4000 level), including two laboratory or field experiences (of which BIOL 4910 may count for one lab). A maximum of three credit hours of BIOL 4910 not applied to Departmental Honors may be used to fulfill the advanced elective credits.		9
BIOL 4010	Molecular Biology	3
CHEM 3520	Biochemistry II	3
Electives to complete 120 credit hours (14~20 credits depending on the GenEd courses taken)		*14*
Total Hours		**120**

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-CLMB : BS in Cell/ Molecular Biology Concentration

Undergraduate students accepted to the SM-BIOL-BS-CLMB : BS in Cell/Molecular Biology Concentration option may 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 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:

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1) Graduate classes taken at The University of Toledo only after
 the student is accepted in the program. 2)
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BIOL 6030 Introduction to Graduate Studies BIOL 6040 Introduction
 to Graduate Cell and Molecular Biology and Methods BIOL 6200
 Advanced Signal Transduction or BIOL 6090 Advanced Cell
 Biology BIOL 6960 Graduate Research
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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.

Biology -Neuroscience Concentration, BS

Code	Title	Hours
The following courses are required for the BS Biology - Neuroscience Concentration:		
Gen Ed requirements for BS Biology Neuroscience Concentration (55~61 credits total)		
UToledo Core Curriculum (Skills, Distributive, and Multicultural) 36~42 credits total		
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
MATH 2600	Introduction To Statistics	3
or MATH 2640	Statistics for Applied Science	
Arts & Humanities (2 disciplines)		6
Social Sciences (2 disciplines)		6
Natural Sciences (2 disciplines, 1 with lab) 6 credits		
PHYS 2070 & PHYS 2075	General Physics I and General Physics I - Lab	5
or PHYS 2130 & PHYS 2135	Physics For Science And Engineering Majors I and Physics for Science and Engineering Majors I - Lab	
CHEM 1280	General Chemistry Lab I	1
Electives from MATH or Distributive Category (9 credits)		
CHEM 1230	General Chemistry I	4
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
One Multicultural: Non U.S. Diversity (0~3 credits) May be satisfied by certain Humanities & Social Sciences elective courses		3
One Multicultural: U.S. Diversity (0~3 credits) May be satisfied by certain Humanities & Social Sciences elective courses		3
Other GenEd courses required for Biology Majors		
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
MATH 1750	Calculus For The Life Sciences With Applications I	4
or MATH 1760	Calculus For The Life Sciences With Applications II	
or MATH 1850	Single Variable Calculus I	
or MATH 1860	Single Variable Calculus II	
PHYS 2080 & PHYS 2085	General Physics II and General Physics II - Lab	5
or PHYS 2140 & PHYS 2145	Physics For Science And Engineering Majors II and Physics for Science and Engineering Majors II - Lab	
BS-Biology Major Course Requirements (30 credits total)		
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
Required Biology Courses		
BIOL 3010	Molecular Genetics	3
BIOL 3030	Cell Biology	3
BIOL 3020	Molecular Genetics Laboratory	2
or BIOL 3040	Cell Biology Laboratory	
Choose two of the following three courses		6
BIOL 3070	Human Physiology	
BIOL 3090	Developmental Biology	
BIOL 4030	Microbiology	
One WAC course within the Program (3 cr)		
BIOL 4700	Biological Literature And Communication	3
Required non-Biology Courses		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
CHEM 2420	Organic Chemistry II	3
CHEM 3510	Biochemistry I	3

Courses required for the BS-BIOL Neuroscience concentration (15 credits)		
NSCI 2050	Fundamentals of Neuroscience I	3
NSCI 3050	Fundamentals of Neuroscience II	3
BIOL 4910	Undergraduate Research	3
or INDI 4000	Directed Research in Human Health Sciences	
PSY 3400	Cognitive Neuropsychology [1]	3
or PSY 3610	Behavioral Neuroscience	
or any 4000 NSCI course		
BIOL 3070	Human Physiology If a student opted for BIOL3070 for their major, they will take BIOL3090 for the concentration, and vice versa.	3
or BIOL 3090	Developmental Biology	
Students in the Neuroscience Concentration need to take BIOL 4700 in a section with a neuroscience focus; but that is usually offered only one semester a year.		
Electives to complete 120 credit hours (14~20 credits depending on the GenEd courses taken)		*14*
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.		
Total Hours		**120**

[1] PSY 3400 requires PSY 2400 and PSY 1010 as prerequisites

Biology - Pre-Medical Studies Concentration, BS

The following courses must be included in the BS-Biology Pre-Medical Professions Concentration:

Code	Title	Hours
Gen Ed requirements for BS-Biology PMED concentration (54~60 credits total)		
UToledo Core Curriculum (Skills, Distributive and Multicultural) 36-42 credits total		
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
MATH 2600	Introduction To Statistics	3
or MATH 2640	Statistics for Applied Science	
Arts & Humanities (2 disciplines)		6
Social Sciences (2 disciplines)		6
Natural Sciences (2 electives, 1 with lab)		
PHYS 2070 & PHYS 2075	General Physics I and General Physics I - Lab	5
or PHYS 2130 & PHYS 2135	Physics For Science And Engineering Majors I and Physics for Science and Engineering Majors I - Lab	
CHEM 1280	General Chemistry Lab I	1
Electives from MATH or Distributive Category (9 credits)		
CHEM 1230	General Chemistry I	4
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
One Multicultural: Non U.S. Diversity (0-3 credits) May be satisfied by certain Humanities & Social Sciences elective courses		3
One Multicultural: U.S. Diversity (0-3 credits) May be satisfied by certain Humanities & Social Sciences elective courses		3
Other Gen Ed courses required for Biology Majors		
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
One other MATH course chosen from MATH 1340, MATH 1750, MATH 1760, MATH 1850 or MATH 1860		3
PHYS 2080 & PHYS 2085	General Physics II and General Physics II - Lab	5
or PHYS 2140 & PHYS 2145	Physics For Science And Engineering Majors II and Physics for Science and Engineering Majors II - Lab	
BS-BIOL Major Course Requirements (30 credits total)		
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
Required Biology Courses		
BIOL 3010	Molecular Genetics	3
BIOL 3030	Cell Biology	3
BIOL 3020	Molecular Genetics Laboratory	2
or BIOL 3040	Cell Biology Laboratory	
Choose 2 from the following three courses [3]		6
BIOL 3070	Human Physiology	
BIOL 3090	Developmental Biology	
BIOL 4030	Microbiology	
One WAC course within the Program (3 cr)		
BIOL 4700	Biological Literature And Communication	3
Other Required Courses		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
CHEM 2420	Organic Chemistry II	3
CHEM 3510	Biochemistry I	3
Courses required for BS-BIOL PMED concentration (15 credits total)		
BIOL 4050	Immunology	3
BIOL 4090	Cancer Biology	3
BIOL 4210	Molecular Basis of Disease	3

In addition, a minimum of six hours of advanced elective BIOL courses (3000 - 4000 level), including one laboratory or field experience (BIOL 4910 may count as a lab or field experience). If a PMED concentration student has not taken BIOL 3070 (Human Physiology) as a major required course then they must take it as part of their concentration upper level BIOL electives. A maximum of three credit hours of BIOL#4910 not applied to Departmental Honors may be used to fulfill the advanced elective credits. The recommended 3000-4000 level courses are: 3 [3]		6
BIOL 3210	Human Nutrition	
BIOL 3910	Research Project Laboratory and Clinical Significance	
BIOL 3050	Fundamentals of Neuroscience II	
BIOL 3510	Comparative Vertebrate Anatomy	
BIOL 4010	Molecular Biology	
BIOL 4031	Cell Biology of Neurons and Glia	
BIOL 4110	Human Genetics and Genomics	
BIOL 4330	Parasitology	
Electives to get to 120 credit hours (15~21 credits depending on the GenEd courses taken)		15

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 - Bioinformatics Concentration, BS (p. 242)
Biology - Cell and Molecular Biology Concentration, BS (p. 239)
Biology - Neuroscience Concentration, BS (p. 244)
Biology - - Pre-Medical Studies Concentration, BS (p. 241)

Biology -Bioinformatics Concentration, BS

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
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
	Hours	**14**
Second Term		
NSM 1500	Building a Career in Science and Math	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
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
	Hours	**17**
Third Term		
NSM 2000	Professional Career Preparation in Math and Science	1
BIOL 3010	Molecular Genetics	3
BIOL 3020 or BIOL 3040	Molecular Genetics Laboratory Students pursuing the BIOI concentration are required to take BIOL 3020 Molecular Genetics Lab. or Cell Biology Laboratory	2
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
MATH 1750 or MATH 1760 or MATH 1850 or MATH 1860	Calculus For The Life Sciences With Applications I or Calculus For The Life Sciences With Applications II or Single Variable Calculus I or Single Variable Calculus II	4
Social Sciences Core		3
	Hours	**17**
Fourth Term		
BIOL 3030	Cell Biology	3
Select one of the following		3
BIOL 3070 or BIOL 3090 or BIOL 4030	Human Physiology or Developmental Biology or Microbiology	
CHEM 2420	Organic Chemistry II (NOTE that adding CHEM 2470 (1 cr. Organic II Lab) would give you a minor in chemistry.])	3
Arts/Humanities Core		3
Social Sciences Core		3
	Hours	**15**
Fifth Term		
PHYS 2070 or PHYS 2130	General Physics I or Physics For Science And Engineering Majors I	4
PHYS 2075 or PHYS 2135	General Physics I - Lab or Physics for Science and Engineering Majors I - Lab	1
CHEM 3510	Biochemistry I	3
MATH 2600	Introduction To Statistics	3
BIOL 4910	Undergraduate Research	1
Electives to get to 120		3
	Hours	**15**
Sixth Term		
BIOL 4010 or BIOL 4110 or BIOL 4210	Molecular Biology or Human Genetics and Genomics or Molecular Basis of Disease	3

CHEM 3520	Biochemistry II	3
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
Electives to get to 120 credits		3
	Hours	**14**
Seventh Term		
BIPG 5100	Fund Bioinformatics Proteomics	3
BIPG 5200	Statistical Methods in Bioinformatics	3
Select one the following		3
BIOL 4030 or BIOL 3070 or BIOL 3090	Microbiology or Human Physiology or Developmental Biology	
Multicultural: U.S. Diversity		3
Electives to get to 120 credits		3
	Hours	**15**
Eighth Term		
BIOL 4700	Biological Literature And Communication	3
BIPG 6500	Applied Statistics for Bioinformatics	3
Multicultural: Non-U.S. Diversity		3
Electives to get to 120 credits		4
	Hours	**13**
	Total Hours	**120**

Biology - Cell and Molecular Biology Concentration, BS

First Term		**Hours**
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
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
	Hours	**14**
Second Term		
NSM 1500	Building a Career in Science and Math	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
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
	Hours	**17**
Third Term		
NSM 2000	Professional Career Preparation in Math and Science	1
BIOL 3010	Molecular Genetics	3
BIOL 3020 or BIOL 3040	Molecular Genetics Laboratory [1] or Cell Biology Laboratory	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 or MATH 1760 or MATH 1850 or MATH 1860	Calculus For The Life Sciences With Applications I or Calculus For The Life Sciences With Applications II or Single Variable Calculus I or Single Variable Calculus II	
Social Sciences Core		3
	Hours	**17**
Fourth Term		
BIOL 3030	Cell Biology	3
BIOL 3070 or BIOL 3090 or BIOL 4030	Human Physiology [2] of these 3 courses are required or Developmental Biology or Microbiology	3
CHEM 2420	Organic Chemistry II	3
Social Sciences Core		3
Arts/Humanities Core		3
	Hours	**15**
Fifth Term		
BIOL 4010	Molecular Biology	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
CHEM 3510	Biochemistry I	3
Diversity of US		3
Elective Biology Lab [1]		1
	Hours	**15**
Sixth Term		
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
CHEM 3520	Biochemistry II	3
BIOL 3XXX/4XXX Major/Concentration Requirement [2]		3
Elective to get to 120		3
	Hours	**14**
Seventh Term		
BIOL 3XXX/4XXX Major/Concentration Requirement [2]		3
Elective BIOL Lab [1]		1
BIOL 4910	Undergraduate Research in a section with a focus in cellular or molecular biology	3

BIOL 4030 or BIOL 3070 or BIOL 3090	Microbiology [2] of these 3 courses are required or Human Physiology or Developmental Biology	3
Arts/Humanities Core		3
	Hours	**13**
Eighth Term		
BIOL 4700	Biological Literature And Communication	3
BIOL 3XXX/4XXX	Major/Concentration Requirement [2]	3
MATH 2600 or MATH 2640	Introduction To Statistics or Statistics for Applied Science	3
Non-US Diversity		3
Electives to get to 120 credit hours [3]		3
	Hours	**15**
	Total Hours	**120**

[1] May take different 3000-4000 level lab in different semesters, 3 lab experiences are required one of which is either BIOL 3020 (Molecular Genetics Lab) or BIOL 3040 (Cell Biology Lab) and not BIOL 4910 (Undergraduate Research)

[2] Within the concentration, 9 hours of 3000-4000 level BIOL electives are required. Hours from the 3000-4000 level BIOL lab requirement count toward elective requirements.

[3] 2 credits are available in the proposed plan of study for students to freely elect from across the University curriculum.

Biology -Neuroscience Concentration, BS

First Term		**Hours**
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
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
	Hours	**14**
Second Term		
NSM 1500	Building a Career in Science and Math	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
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
	Hours	**17**
Third Term		
NSM 2000	Professional Career Preparation in Math and Science	1
BIOL 3010	Molecular Genetics	3
BIOL 3020 or BIOL 3040	Molecular Genetics Laboratory [1] or Cell Biology Laboratory	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 or MATH 1760 or MATH 1850 or MATH 1860	Calculus For The Life Sciences With Applications I or Calculus For The Life Sciences With Applications II or Single Variable Calculus I or Single Variable Calculus II	
Social Sciences Core		3
	Hours	**17**
Fourth Term		
BIOL 3030	Cell Biology	3
BIOL 3070 or BIOL 3090 or BIOL 4030	Human Physiology or Developmental Biology or Microbiology	3
CHEM 2420	Organic Chemistry II	3
Arts/Humanities Core		3
Social Sciences Core		3
NSM 2000	Professional Career Preparation in Math and Science	1
	Hours	**16**
Fifth Term		
BIOL 3090 or BIOL 3070	Developmental Biology or Human Physiology	3
PSY 2400	Cognitive Psychology	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
CHEM 3510	Biochemistry I	3
	Hours	**14**
Sixth Term		
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
CHEM 3520	Biochemistry II	3
NSCI 2050	Fundamentals of Neuroscience I	3
Electives to get to 120 hours		4
	Hours	**15**
Seventh Term		
NSCI 3050	Fundamentals of Neuroscience II	3
BIOL 4910 or INDI 4000	Undergraduate Research or Directed Research in Human Health Sciences	3
MATH 2600 or MATH 2640	Introduction To Statistics or Statistics for Applied Science	3

Non US Diversity		3
	Hours	**12**
Eighth Term		
BIOL 4700	Biological Literature And Communication ((Neuro))	3
PSY 3400 or PSY 3610	Cognitive Neuropsychology or Behavioral Neuroscience	3
ANY NSCI course numbered 4000 or above		
Electives to get to 120 hours		3
Diversity of US		6
	Hours	**15**
	Total Hours	**120**

[1] May take different 3000-4000 level lab in different semester, 2 are required.

[2] 9 hours of 3000-4000 level BIOL electives are required. Hours from the 3000-4000 level BIOL lab requirement count toward requirement.

Biology - Pre-Medical Studies Concentration, BS

First Term		**Hours**
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
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
	Hours	**14**
Second Term		
NSM 1500	Building a Career in Science and Math	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
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
	Hours	**17**
Third Term		
BIOL 3010	Molecular Genetics	3
BIOL 3020	Molecular Genetics Laboratory [1]	2
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
NSM 2000	Professional Career Preparation in Math and Science	1
Social Sciences Core		3
MATH 2600 or MATH 2640	Introduction To Statistics or Statistics for Applied Science	3
	Hours	**16**
Fourth Term		
BIOL 3030	Cell Biology	3
BIOL 3070	Human Physiology	3
CHEM 2420	Organic Chemistry II	3
Social Sciences Core		3
Arts/Humanities Core		3
	Hours	**15**
Fifth Term		
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
CHEM 3510	Biochemistry I	3
BIOL 3XXX/4XXX Major/Concentration Requirement [1]		3
Diversity of US		3
	Hours	**14**
Sixth Term		
PHYS 2080	General Physics II	4
PHYS 2085	General Physics II - Lab	1
BIOL 3XXX/4XXX Major/Concentration Requirement [1]		3
BIOL 4050	Immunology	3
	Hours	**11**
Seventh Term		
BIOL 4910	Undergraduate Research in a section with a focus in cellular or molecular biology	3
BIOL 4030	Microbiology	3
BIOL 4090	Cancer Biology	3
BIOL 3XXX/4XXX Major/Concentration Requirement [1]		3
Arts/Humanities Core		3
Electives to get to 120 hours [1]		3
	Hours	**18**
Eighth Term		
BIOL 4210	Molecular Basis of Disease	3
BIOL 4700	Biological Literature And Communication	3
One other MATH course of students choosing [2]		3
Non-US Diversity		3
Electives to get to 120 hours [1]		3
	Hours	**15**
	Total Hours	**120**

[1] A minimum of six hours of advanced elective BIOL courses (3000 - 4000 level), including one laboratory or field experience (BIOL 4910 may count as a lab or field experience). A maximum of three credit hours of BIOL 4910 not applied to Departmental Honors may be used to fulfill the advanced elective credits.

[2] Students must choose one other MATH course from MATH 1340, MATH 1750, MATH 1760, MATH 1850 or MATH 1860

[3] If a PMED concentration student has not taken BIOL 3070 (Human Physiology) as a major required course then they must take it as part of their concentration upper level BIOL electives.

- PLO 1. Students will demonstrate a thorough understanding of fundamental concepts of cell and molecular biology, chemistry, biochemistry, evolutionary biology, and physiology.
- 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.
- PLO 3. Students will act effectively as a member of a team.
- PLO 4. Students will understand and comply with ethical behavior in coursework, research, and the use of scientific information.
- PLO 5. Students will be able to perform effective primary literature searches and identify relevant primary literature.
- PLO 6. Students will be able to read primary biological literature and apply critical thinking to the analysis and interpretation of biological experiments.
- PLO 7. Students will demonstrate appropriate oral and written skills to communicate concepts in biology to the public, peers, and specialists.
- PLO 8. Students will demonstrate the ability to incorporate diverse views and perspectives.

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.

Code	Title	Hours
UToledo General Education Courses		
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
MATH 1320	College Algebra	3
ENGL 1110	College Composition I	3
ENGL 2950	Technical Writing	3
Arts and Humanities Electives		6
Multicultural Course		3-6
Social Science Electives		6
NSM College requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
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 professional portion of the program:		
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
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
BIOL 3010	Molecular Genetics	3
BIOL 3030	Cell Biology	3
BIOL 4030	Microbiology	3
BIOL 4040	Microbiology Laboratory	1
BIOL 4050	Immunology	3
BIOL 4060	Immunology Laboratory	1
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
MATH 2600	Introduction To Statistics	3
MEDT 2010	Introduction to Medical Laboratory Techniques	2
The following courses comprise the professional portion of the program and are required to be completed with a grade of C or better		
MEDT 4020	Clinical Hematology I	3
MEDT 4025	Clinical Hematology II	4
MEDT 4030	Body Fluids	2
MEDT 4040	Clinical Chemistry	5
MEDT 4050	Clinical Microbiology I	4
MEDT 4060	Clinical Immunology	3
MEDT 4080	Clinical Immunohematology	4
MEDT 4120	Clinical Microbiology II	3
MEDT 4500	Clinical Research and Clinical Correlations	3
MEDT 4950	Laboratory Management	1
MEDT 4951	Clinical Externship: Microbiology	4
MEDT 4952	Clinical Externship: Chemistry	2
MEDT 4953	Clinical Externship: Hematology	2
MEDT 4954	Clinical Externship: Immunohematology	3
Total Hours		**120-123**

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

First Year		
First Term		**Hours**
MATH 1320	College Algebra	3
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
ENGL 1110	College Composition I	3
Multicultural (CORE)		3
	Hours	**15**
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
EXSC 2560	Anatomy and Physiology I	3
EXSC 2460	Human Anatomy And Physiology I Lab	1
NSM 1500	Building a Career in Science and Math	1
	Hours	**15**
Second Year		
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
MATH 2600	Introduction To Statistics	3
Social Science (CORE)		3
	Hours	**15**
Fourth Term		
BIOL 3010	Molecular Genetics	3
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
ENGL 2950	Technical Writing	3
NSM 2000	Professional Career Preparation in Math and Science	1
Apply to MLS program Term 4		
	Hours	**15**
Third Year		
Fifth Term		
BIOL 4030	Microbiology	3
BIOL 4040	Microbiology Laboratory	1
BIOL 4050	Immunology	3
Arts/Humanities (CORE)		6
Social Science (CORE)		3
	Hours	**16**
Sixth Term		
MEDT 4020	Clinical Hematology I	3
MEDT 4030	Body Fluids	2
MEDT 4040	Clinical Chemistry	5
MEDT 4050	Clinical Microbiology I	4
BIOL 4060	Immunology Laboratory	1
	Hours	**15**
Fourth Year		
Seventh Term		
MEDT 4025	Clinical Hematology II	4
MEDT 4120	Clinical Microbiology II	3
MEDT 4060	Clinical Immunology	3
MEDT 4080	Clinical Immunohematology	4
MEDT 4950	Laboratory Management	1
	Hours	**15**
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
	Hours	**14**
	Total Hours	**120**

- Graduates will demonstrate didactic proficiency expected for an entry level Medical Laboratory Scientist: 1. Measured by meeting the program outcome pass rate of 75%.; 2. Measured by passing rate in all MLS courses of 70% and above.; 3. Measured by BOC passing scores (>400) in each area by 90%.
- Be able to correlate clinical laboratory data with patient disease processes: 1. Measured by MEDT 4500 case study project and presentation.
- Abide by the code of ethics for the profession outlined by the American Society of Clinical Laboratory Scientists https://ascls.org/code-of-ethics/. 1. Measure by signing at the point of application.
- Demonstrate commitment to continued education growth within the profession to ensure progress toward professional competence. 1. Measured by the number of graduates getting advanced degrees or certifications. 1. Action: post-graduation surveys.
- Students will demonstrate ethical scientific and academic conduct. 1. Measured by all MLS courses in affecter behavior. 1. Action: each syllabus had measurement of affecter behaviors.
- Students will demonstrate communication skills by oral and written expression of ideas and facts. 1. Measured by reporting of accurate and effective reports. 2. Measured by record of maintenance and quality control. 1. Action: clinical externship MEDT 4951, 4952, 4953, 4954.

- Demonstrate critical thinking in evaluating patient results to ensure accurate patient testing (pre-analytical, analytical phase) and reporting of results (post-analytical phase). 1. Measured by clinical externship courses. 1. Action: Clinical externship and post-6-month affiliate survey.

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**

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
	Hours	**15**
Second Term		
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
	Hours	**16**
Third Term		
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
	Hours	**16**
Fourth Term		
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
	Hours	**16**
Fifth Term		
NSCI 4010	Functional Neuroanatomy	3
NSCI 4020	Neuropharmacology	3
PHYS 2070	General Physics I	4
PHYS 2075	General Physics I - Lab	1
Elective		3
	Hours	**14**
Sixth Term		
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
	Hours	**16**
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
	Hours	**15**
Eighth Term		
Elective - Major		3
Elective - Major		3
BIOL 4700	Biological Literature And Communication	3
Social Sciences Core		3
	Hours	**12**
	Total Hours	**120**

- 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.

Certificate in Biological Laboratory Technician

This certificate will prepare students with the practical skills needed to successfully compete for careers in academic, government and biotech or biopharmaceutical industry labs as biological laboratory technicians. Students who complete the certificate will gain proficiency in a wide range of hands-on lab techniques and research routines in the context of modern biological research. This certificate is primarily intended for students pursuing a BA or BS in Biology; students in other undergraduate majors should consult with their advisor regarding prerequisite and co-requisite course requirements for specific 3000-4000 level laboratory courses in the certificate. No classes used to satisfy the requirements of the certificate may be taken P/NC with the exceptions of BIOL 4910 and BIOL 4950.

For the Biological Laboratory Technician Certificate at least 12 hours from the following list of courses are required. 6 credits (2 semesters) of Undergraduate research in a research laboratory setting are required and the remaining six credits can be chosen from the other listed courses.

Code	Title	Hours
BIOL 4910	Undergraduate Research	6
or BIOL 4950	Internship In Biology	
Six credits of laboratory coursework chosen from the following		6
BIOL 3910	Research Project Laboratory and Clinical Significance	
BIOL 3020	Molecular Genetics Laboratory	
BIOL 3040	Cell Biology Laboratory	
BIOL 4040	Microbiology Laboratory	
BIOL 4060	Immunology Laboratory	
BIOL 3100	Developmental Biology Laboratory	
Total Hours		**12**

BIOL 3910 requires a student to have completed BIOL 2170 and BIOL 2180, all the other formal 3000-4000 laboratory courses in the certificate require an associated lecture course as co-requisite:
BIOL 3020 requires enrollment in or previous completion of BIOL 3010
BIOL 3040 requires enrollment in or previous completion of BIOL 3030
BIOL 4040 requires enrollment in or previous completion of BIOL 4030
BIOL 4060 requires enrollment in or previous completion of BIOL 4050
BIOL 3100 requires enrollment in or previous completion of BIOL 3090

- Students will demonstrate a thorough understanding of fundamental laboratory techniques employed in laboratories studying a range of biological subjects including cell, molecular, and developmental biology, microbiology, and immunology.
- PLO 2. Students will demonstrate the ability to generate and analyze data generated in biological laboratories.
- PLO 3. Students will act effectively as a member of a team.
- PLO 4. Students will understand and comply with ethical behavior in coursework, research, and the use of biological information.

Certificate in Clinical Microbiology for Medical Laboratory Science

The Certificate in Clinical Microbiology for Medical Laboratory Science prepares students with the knowledge and skills of a Medical Laboratory Scientist generalist in the specific area of Clinical Microbiology. Students who complete the certificate will have the skills to work in the Clinical Microbiology field of Medical Laboratory Science and will be eligible to sit for the ASCP national certification examination in the area of Microbiology. No classes used to satisfy the requirements of this certificate may be taken P/NC.

Students pursuing or who hold a BA or BS in Biology will have the foundational coursework that best aligns with the certificate, other STEM majors may need additional prerequisite coursework. Please consult with the MLS program director if you are interested in pursuing this certificate.

Code	Title	Hours
MEDT 4950	Laboratory Management	1
MEDT 4050	Clinical Microbiology I	4
MEDT 4120	Clinical Microbiology II	3
MEDT 4060	Clinical Immunology	3
MEDT 4951	Clinical Externship: Microbiology	4
BIOL 4030 & BIOL 4040	Microbiology and Microbiology Laboratory	4
BIOL 4050 & BIOL 4060	Immunology and Immunology Laboratory	4
Total Hours		**23**

- 1. Perform routine and complex analytical testing on microorganisms recovered from body fluids or tissue.
- 2. Perform and interpret gram stains on clinical smears.
- 3. Analyze antibiotic sensitivities with appropriate cultures and organisms.
- 4. Identify parasitic organisms from body fluids.
- 5. Correlate data obtained from molecular diagnostic testing with infectious disease processes.
- 6. Evaluate and interpret quality of data to eliminate any pre-analytical, analytical, or post-analytical error.

Minor in Biology

The minor in biology requires 22 credits including the following required courses and and a minimum GPA of 2.0 in these courses.

The minor in biology requires 22 credits including the following required courses and 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
Total Hours		**22**

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 Physics and Astronomy

Rupali Chandar, Interim Chair
Anne Medling, Graduate Program Director
Sanjay V. Khare, Coordinator, Minor in Renewable Energy

Advisors:

BS - Physics, concentration Astronomy and 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 with concentrations in Applied Physics, Astronomy and Astrophysics, Medical Physics, and Physics; minors in Astrophysics, Physics, and Renewable Energy; and certificates in Photovoltaics, Materials Science, and Semiconductors..

Advanced Placement

- Students with a score of 3, 4 or 5 on the Physics B test will receive credit for PHYS 2070, PHYS 2075, PHYS 2080, and PHYS 2085
- Students with a score of 3, 4 or 5 on the Physics C Mechanics test will receive credit for PHYS 2130 and PHYS 2135;
- Students with a score of 3, 4 or 5 on the Physics C Electricity and Magnetism test will receive credit for PHYS 2140 and PHYS 2145.

Degrees Offered

- BS in Physics (p. 255)
- Certificate in Photovoltaics (p. 263)
- Minor in Astrophysics (p. 263)
- Minor in Physics (p. 264)
- Minor in Renewable Energy (p. 264)

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 including photosynthesis, photovoltaic, solar thermal, and concentrating solar electric; emphasis on understanding Earth's solar resource, and energy conversion through photovoltaic solar cells and modules.
Prerequisites: CHEM 1230 with a minimum grade of C or PHYS 2070 with a minimum grade of C or PHYS 2130 with a minimum grade of C
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 4660 Foundations of Glass Science
[3 credit hours]
This course introduces the scientific foundations of glass. Topics include glass formation, structure, phase transformations, vibrational and thermal properties, atomic and ionic transport, viscosity and glass transition, electronic and optical properties, surface and chemical durability, and mechanical properties. Emphasis is placed on linking atomic-scale structure and bonding to macroscopic behavior across different families of glasses. The course provides a conceptual foundation for students pursuing glass science, materials science, and related research or industries.
Prerequisites: PHYS 2140 with a minimum grade of C and CHEM 1230 with a minimum grade of C
Term Offered: Fall

PHYS 4670 Glass Technologies
[3 credit hours]
A foundational course on glass technologies with emphasis on industrial practices. Topics include both conventional and non-conventional glass making, forming, and processing technologies across a broad range of glass families and product forms. Emphasis is also placed on how glass technologies are developed to align with composition and to engineer structure, thereby achieving tailored properties and functionalities in glass products. Historical and current glass industry players, manufacturing technologies, and products that have shaped the modern world are also highlighted throughout the course.
Prerequisites: PHYS 2140 with a minimum grade of C and CHEM 1230 with a minimum grade of C
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 sd 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]
Experential 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[1], 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.

[1] ASTR 4810, ASTR 4820 may count toward this requirement.

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. No classes used to satisfy the

requirements of the BS in Physics including related courses, may be taken P/NC.

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. 256)
- Physics -Applied Physics Concentration, BS
- Physics - Astronomy and Astrophysics Concentration, BS
- Physics -Medical Physics Concentration, BS

Physics -Physics Concentration, BS

Code	Title	Hours
Recommended Introductory Course		
PHYS 1910	Frontiers Of Physics And Astronomy (Strongly recommended)	3
Required Core Physics Courses		
PHYS 2130	Physics For Science And Engineering Majors I Or 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 Or 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 1-3 hrs 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 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
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
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	

Combined Bachelor's to Master's Pipeline Program

Undergraduate students accepted to the Physics Pipeline Program will be admitted to the MS Physics with Non-Thesis Option and allowed to complete up to nine credits of graduate level classes while completing their final 1-2 years 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 graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine credit 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 credit hours of graduate taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when all undergraduate degree requirements are satisfied.

ELIGIBILITY REQUIREMENTS

UT undergraduate students must 1) be majoring in the BS in Physics degree program, 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 in BS Physics program can submit their application after completing at least 9 credit hours of physics (PHYS) or astronomy (ASTR) courses at PHYS/ASTR 3000 level or above. Application to this early pipeline program must contain 1) a letter of interest, 2) a completed graduate admission application, and 3) at least 2 letters 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) 3 of the following courses: PHYS 5130, PHYS 5210, PHYS 5230, PHYS 5240, PHYS 5310, PHYS 5430, PHYS 5440, PHYS 5510, PHYS 6280, PHYS 6630 or upon approval of either Graduate Advisor or Department Chair, other PHYS courses at the 5000 level or greater, excluding PHYS 5900, PHYS 6010/PHYS 8010, PHYS 6020/8020, and PHYS 7910 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.

Physics -astronomy and Astrophysics Concentration, BS

Code	Title	Hours
UToledo Core Curriculum		**26**
UToledo Multicultural		**6**
College of NSM Degree Requirements		

NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
NSM 2000	Professional Career Preparation in Math and Science	1
Recommended Introductory Physics Course		
PHYS 1910	Frontiers Of Physics And Astronomy (Strongly recommended)	3
Required Core Physics Courses		
PHYS 2130	Physics For Science And Engineering Majors I Or 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 Or 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 1-3 hrs in each of two semesters	4
PHYS 4920	Senior Capstone Project	1
PHYS 4950	Undergraduate Professional Development Seminar	1
Required related courses:		
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 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
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
Required Courses for the Astronomy and 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 additional to the above requirements, students should select CSET 1100 as the programming course		
Total Hours		**120**

Combined Bachelor's to Master's Pipeline Program

Undergraduate students accepted to the Physics Pipeline Program will be admitted to the MS Physics with Non-Thesis Option and allowed to complete up to nine credits of graduate level classes while completing their final 1-2 years 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 graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine credit 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 credit hours of graduate taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when all undergraduate degree requirements are satisfied.

ELIGIBILITY REQUIREMENTS

UT undergraduate students must 1) be majoring in the BS in Physics degree program, 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 in BS Physics program can submit their application after completing at least 9 credit hours of physics (PHYS) or astronomy (ASTR) courses at PHYS/ASTR 3000 level or above. Application to this early pipeline program must contain 1) a letter of interest, 2) a completed graduate admission application, and 3) at least 2 letters 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) 3 of the following courses: PHYS 5130, PHYS 5210, PHYS 5230, PHYS 5240, PHYS 5310, PHYS 5430, PHYS 5440, PHYS 5510, PHYS 6280, PHYS 6630 or upon approval of either Graduate Advisor or Department Chair, other PHYS courses at the 5000 level or greater, excluding PHYS 5900, PHYS 6010/PHYS 8010, PHYS 6020/8020, and PHYS 7910.Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

Physics -Applied Physics Concentration, BS

Code	Title	Hours
Recommended Introductory Course		
PHYS 1910	Frontiers Of Physics And Astronomy (Strongly recommended)	3
Required Core Physics Courses		

PHYS 2130	Physics For Science And Engineering Majors I Or 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 Or 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 1-3 hrs 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 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
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
Required Courses for Applied Physics Concentration		
PHYS 3180	Intermediate Laboratory	3
PHYS 3610	Optics And Lasers	3
PHYS 4510	Physics Of Condensed Matter	3
or PHYS 4630	Semiconductors 1	
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

Combined Bachelor's to Master's Pipeline Program

Undergraduate students accepted to the Physics Pipeline Program will be admitted to the MS Physics with Non-Thesis Option and allowed to complete up to nine credits of graduate level classes while completing their final 1-2 years 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 graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine credit 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 credit hours of graduate taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when all undergraduate degree requirements are satisfied.

ELIGIBILITY REQUIREMENTS

UT undergraduate students must 1) be majoring in the BS in Physics degree program, 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 in BS Physics program can submit their application after completing at least 9 credit hours of physics (PHYS) or astronomy (ASTR) courses at PHYS/ASTR 3000 level or above. Application to this early pipeline program must contain 1) a letter of interest, 2) a completed graduate admission application, and 3) at least 2 letters 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) 3 of the following courses: PHYS 5130, PHYS 5210, PHYS 5230, PHYS 5240, PHYS 5310, PHYS 5430, PHYS 5440, PHYS 5510, PHYS 6280, PHYS 6630 or upon approval of either Graduate Advisor or Department Chair, other PHYS courses at the 5000 level or greater, excluding PHYS 5900, PHYS 6010/PHYS 8010, PHYS 6020/8020, and PHYS 7910 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.

Physics - Medical Physics Concentration, BS

Code	Title	Hours
UToledo Core Curriculum (36 total)		18
Required MATH & PHYS courses provide 18 credit hours		
UToledo Multicultural		6
College of NSM Degree Requirements		
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
NSM 1500	Building a Career in Science and Math	1
One WAC course within the Program (3 cr hrs)		
Recommended Introductory Course		
PHYS 1910	Frontiers Of Physics And Astronomy (Strongly recommended)	3
Required Core Physics Courses		
PHYS 2130	Physics For Science And Engineering Majors I Or 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 Or 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 1-3 hrs 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 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
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 elective course		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
Total Hours		**120**

Combined Bachelor's to Master's Pipeline Program

Undergraduate students accepted to the Physics Pipeline Program will be admitted to the MS Physics with Non-Thesis Option or MS in Biomedical Science (Medical Physics) and allowed to complete up to nine credits of graduate level classes while completing their final 1-2 years 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 graduate program upon completion of the undergraduate degree requirements. The graduate coursework (up to nine credit 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 credit hours of graduate taken as an undergraduate is strictly enforced, and to request that the College of Graduate Studies change their matriculation from Undergraduate to Graduate when all undergraduate degree requirements are satisfied.

ELIGIBILITY REQUIREMENTS

For the MS in Physics program: UT undergraduate students must 1) be majoring in the BS in Physics degree program, 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.

For the MS in Biomedical Science (Medical Physics) program: UT undergraduate students must 1) be majoring in the BS in Physics degree program, 2) 3.0 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

For the M.S in Physics program: Students in BS Physics program can submit their application after completing at least 9 credit hours of physics (PHYS) or astronomy (ASTR) courses at PHYS/ASTR 3000 level or above. Application to this early pipeline program must contain 1) a letter of interest, 2) a completed graduate admission application, and 3) at least 2 letters of recommendation from faculty members.

For the MS in Biomedical Science (Medical Physics) program: Students in BS Physics program can submit their application after completing at least 9 credit hours of physics (PHYS) at PHYS 3000 level or above. Application to this early pipeline program must contain 1) a letter of interest, 2) a completed graduate admission application, and 3) at least 3 letters of recommendation .

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) For M.S in Physics program: 3 of the following courses: PHYS 5130, PHYS 5210, PHYS 5230, PHYS 5240, PHYS 5310, PHYS 5430, PHYS 5440, PHYS 5510, PHYS 6280, PHYS 6630 or upon approval of either Graduate Advisor or Department Chair, other PHYS courses at the 5000 level or greater, excluding PHYS 5900, PHYS 6010/PHYS 8010, PHYS 6020/8020, and PHYS 7910 may be included in the approved nine semester hours of graduate credit taken as an undergraduate.

For MS in Biomedical Science (Medical Physics) program: 3 of the following courses: MPHYS 6110, MPHYS 6010, MPHYS 6300, MPHYS 6020, MPHYS 6180.

Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

Sample plans of study

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

- Physics -Physics Concentration, BS (p. 260)
- Physics -Applied Physics Concentration, BS (p. 260)
- Physics -Astronomy and Astrophysics Concentration, BS (p. 261)
- Physics -Medical Physics Concentration, BS (p. 262)

Physics -Physics Concentration, BS

First Year

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
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 1850	Single Variable Calculus I	4
ENGL 1110	College Composition I	3
	Hours	**16**

Second Term		
NSM 1500	Building a Career in Science and Math	1
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
MATH 1860	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
	Hours	**16**

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
	Hours	**15**

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
	Hours	**15**

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
	Hours	**15**

Second Term		
PHYS 4240	Electricity And Magnetism II	3
PHYS 4310	Quantum Mechanics	3
Diversity of US		3
Social Sciences Core		3
Select one PHYS course or a Major Level course in other NSM Departments at 2000 level or above		3
	Hours	**15**

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 (1-3 hrs)	2
PHYS 4950	Undergraduate Professional Development Seminar	1
Arts/Humanities Core		3
Electives		6
	Hours	**15**

Second Term		
PHYS 4910	Research Problems-Physics And Astronomy	2
PHYS 4920	Senior Capstone Project	1
Electives		10
	Hours	**13**
	Total Hours	**120**

Physics -Applied Physics Concentration, BS

First Year

First Term		Hours
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
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 1850	Single Variable Calculus I	4
ENGL 1110	College Composition I	3
	Hours	**16**

Second Term		
NSM 1500	Building a Career in Science and Math	1
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
MATH 1860	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
	Hours	**16**
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
	Hours	**15**
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
	Hours	**15**
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
	Hours	**15**
Second Term		
PHYS 4240	Electricity And Magnetism II	3
PHYS 4310	Quantum Mechanics	3
Diversity of US		3
Social Sciences Core		3
Select one PHYS course or a Major Level course in other NSM Departments at 2000 level or above		3
	Hours	**15**
Fourth Year		
First Term		
PHYS 3610	Optics And Lasers	3
PHYS 4510	Physics Of Condensed Matter	3
PHYS 4910	Research Problems-Physics And Astronomy (1-3 hrs)	2
PHYS 4950	Undergraduate Professional Development Seminar	1
Arts/Humanities Core		3
Electives		3
	Hours	**15**
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 (1-3 hrs)	2
PHYS 4920	Senior Capstone Project	1
Electives		4
Physics or Eng 3000/4000 Level		3
	Hours	**13**
	Total Hours	**120**

Physics -astronomy and Astrophysics Concentration, BS

First Year		
First Term		**Hours**
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
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 1850	Single Variable Calculus I	4
	Hours	**16**
Second Term		
NSM 1500	Building a Career in Science and Math	1
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 1860	Single Variable Calculus II	4
ENGL 1110	College Composition I	3
	Hours	**16**
Second Year		
First Term		
PHYS 3310	Modern Physics I	3
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
CSET 1100	Introduction to Computer Science and Engineering Technology	4
MATH 2850	Elementary Multivariable Calculus	4
	Hours	**16**

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
	Hours	**13**
Third Year		
First Term		
MATH 3610	Statistical Methods I	3
PHYS 4210	Theoretical Mechanics	3
PHYS 4230	Electricity And Magnetism I	3
Select one PHYS course or a Major Level course in other NSM Departments at 2000 level or above		3
Non-US Diversity		3
PHYS 4950	Undergraduate Professional Development Seminar	1
	Hours	**16**
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
	Hours	**15**
Fourth Year		
First Term		
ASTR 4810	Astrophysics I	3
ASTR 4880	Astrophysical Measurements	3
PHYS 4910	Research Problems-Physics And Astronomy [1-3 hrs]	2
Arts/Humanities Core		3
Elective		3
	Hours	**14**
Second Term		
ASTR 4820	Astrophysics II	3
PHYS 4910	Research Problems-Physics And Astronomy [1-3 hrs]	2
PHYS 4920	Senior Capstone Project	1
Arts/Humanities Core		3
Social Sciences Core		3
Elective		2
	Hours	**14**
	Total Hours	**120**

PHYSICS - MEDICAL PHYSICS CONCENTRATION, BS

First Year		
First Term		**Hours**
NSM 1000	Foundations of Academic Success for Science and Math Majors	1
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 1850	Single Variable Calculus I	4
ENGL 1110	College Composition I	3
	Hours	**16**
Second Term		
NSM 1500	Building a Career in Science and Math	1
PHYS 2140	Physics For Science And Engineering Majors II	4
PHYS 2145	Physics for Science and Engineering Majors II - Lab	1
MATH 1860	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
	Hours	**16**
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
	Hours	**15**
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
	Hours	**15**
Third Year		
Fifth Term		
PHYS 4210	Theoretical Mechanics	3
PHYS 4230	Electricity And Magnetism I	3
Arts/Humanities Core		3
Writing Across Curriculum (WAC) non-physics		3
Non-US Diversity		3
	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
	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 [1-3 hrs]	2
PHYS 4950	Undergraduate Professional Development Seminar	1
EXSC 2510	Human Anatomy	3
EXSC 2520	Human Anatomy Lab	1
Arts/Humanities Core		3
	Hours	**16**
Eighth Term		
PHYS 4440	Medical Physics II	3
PHYS 4910	Research Problems-Physics And Astronomy [1-3 hrs]	2
PHYS 4920	Senior Capstone Project	1
EXSC 2530	Human Physiology	3
EXSC 2540	Human Physiology Lab	1
Social Sciences Core		3
	Hours	**13**
	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.

Certificate in Photovoltaics

Students need to have completed a calculus based General Physics II with lab (PHYS 2140 and PHYS 2145), and General Chemistry II (CHEM 1240) in order to be able to enroll in and complete all certificate course requirements. No classes used to satisfy the requirements of the Photovoltaics Certificate may be taken P/NC.

Required Courses

Code	Title	Hours
Courses required for the Certificate:		
PHYS 3400	Physical Principles Of Energy Sources For Humans	3
PHYS 4400	Principles and Varieties of Solar Energy	3
PHYS 4630	Semiconductors 1	3
Choose one Elective Course from the following:		3
PHYS 4580	Molecular And Condensed Matter Laboratory	
PHYS 4910	Research Problems-Physics And Astronomy [1]	
PHYS 4940	Internship in Renewable Energy	
PHYS 4980	Special Topics In Physics [1]	
Total Hours		**12**

[1] The selection of PHYS 4910 or PHYS 4980 course needs to be approved by the Advisor.

- Demonstrate an understanding of foundational concepts in chemistry, physics, and engineering as applied to photovoltaics.
- Demonstrate an understanding of the PV materials and devices, including\noptical, electrical, structural, and defect properties, phase transformations, and growth, materials characterization, device working principle, 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.

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
Total Hours		**23-25**

Students must maintain a minimum GPA of 2.0 for all course work in the minor. No classes used to satisfy the requirements of the minor in astrophysics may be taken P/NC. 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
Total Hours		**22-24**

Students must maintain a minimum GPA of 2.0 for all course work in the minor. No classes used to satisfy the requirements of the minor in physics may be taken P/NC. 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	Environmental Policy	3
or ECON 3240	Environmental Economics	
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)	
Total Hours		**21**

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		

No classes used to satisfy the requirements of the minor in renewable energy may be taken P/NC.

Faculty

Department of Chemistry and Biochemistry

Peter R. Andreana, 2012, Distinguished University Professor, B.S., Brock University; Ph.D., Wayne State University

John J. Bellizzi, III, 2008, 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

Claire Cohen-Fray, 2007, Distinguished University Lecturer, B.S., University of Massachusetts; Ph.D., Cornell University

Steven Dajnowicz, 2026, Assistant professor, B.S., Ph.D., University of Toledo

Anna George, 2024, Associate lecturer, B.A., B.S., M.E., Ph.D. University of North Texas

Xiche Hu, 1998, Associate professor, B.S., M.S., Wuhan University; Ph.D., Wayne State University

Dragan Isailovic, 2008, Professor, Diploma – Physical Chemistry, University of Belgrade, Serbia; Ph.D., Iowa State University

Jon R. Kirchhoff, 1989, Distinguished University Professor, B.S., State University of New York - Cortland; Ph.D., Purdue University

Wei Li, 2015, Associate professor and Associate Chair, B.S., University of North Carolina; Ph.D., University of Michigan

Cora Lind-Kovacs, 2003, Professor, Prediploma, Bergische Universität Wuppertal; M.S., Ph.D., Georgia Institute of Technology

Michal Marszewski, 2021, Assistant professor, B.Sc., M.Sc., Military University of Technology; Ph.D., Kent State University

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., 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

Shaimaa H. Sindi, 2026, Assistant professor, Pharm.D., Um Alqura University; M.S., Ph.D., University of Toledo

Steven J. Sucheck, 2005, Professor and Chair, B.S., University of Toledo; Ph.D., University of Virginia

Michael C. Young, 2016, Associate professor, B.S., M.S., Western Carolina University; Ph.D., University of California, Riverside

Jianglong Zhu, 2010, Professor, B.S., M.S., Tianjin University; Ph.D., Boston University

Elizabeth Zhurova, 2013, Senior lecturer, B.S., M.S., Mendeleev University of Chemical Technology; Ph.D., Karpov Institute of Physical Chemistry

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

Thomas B. Bridgeman, 2006, Professor and Director, Lake Erie Center, B.S., Miami University; M.S., The Ohio State University; Ph.D., University of Michigan

Todd D. Crail, 2012, Distinguished University Lecturer, B.A. Bluffton University; M.S., Ph.D. The University of Toledo

Kennedy O. Doro, 2019, Associate professor, B.Sc. Delta State University; M.Sc., Ph.D. University of Tuebingen

Timothy G. Fisher, 2003, Professor, B.S., University of Alberta; M.S., Queen's University; Ph.D., University of Calgary

Inke Forbrich, 2022, Assistant Professor, M.Sc., University of Halle-Wittenberg (Germany), Ph.D., University of Greifswald (Germany)

Scott A. Heckathorn, 2003, Professor, B.S., Wichita State University; M.S., Ph.D., University of Illinois

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David E. Krantz, 2001, Associate professor, B.S., College of William and Mary; M.S., Ph.D., University of South Carolina

James A. Martin-Hayden, 1994, Associate professor, B.A., University of Maine; M.S., Ph.D., University of Connecticut

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Song S. Qian, 2012, Professor, B.S. Tsinghua University; M.S. Nanjing University; M.S., Ph.D. Duke University

Jeanine M. Refsnider, 2015, Associate professor, B.S., University of Minnesota-Morris; M.S., University of Minnesota; Ph.D., Iowa State University

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Department of Mathematics and Statistics

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Katherine Bryant, 2010, Senior lecturer, B.S., M.S., The University of Toledo

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Zhiwei Chen, 2011, Senior lecturer, B.A. Central University of Finance and Economics (China); Ph.D., University of Maryland

Zeljko Cuckovic, 1994, Professor, B.S., M.S., University of Zagreb (Croatia); Ph.D., Michigan State University

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Paramasamy Karuppuchamy, 2012, Senior lecturer, B.Sc., M.Sc., Madurai Kamaraj University (India), Ph.D., University of Madras (India)

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Rong Liu, 2009, Professor, B.S., Shandong University (China); M.S., University of North Texas; Ph.D., Michigan State University

Geoffrey K. Martin, 1989, Associate professor and Associate Chair, B.S., University of Connecticut; M.A., Ph.D., State University of New York - Stony Brook

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Md Nurul Islam Raihen, 2024, Associate lecturer, B.S. Mathematics University of Dhaka (Bangladesh), M.S. University of Toledo, M.A., Ph.D. Wayne State University

Sandra Robinson, 2016, Distinguished University Lecturer, B.A., M.A., Wayne State University

Sonmez Sahutoglu, 2009, Professor, B.S., M.S., Middle East Technical University (Turkey); Ph.D., Texas A&M University

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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

Medical Laboratory Scientist Program Faculty

Lisa Jordan, 2023, Associate professor and MLS Program Director, B.S., Youngstown State University; M.S., Lehigh University

Adelle Rodriguez, 2025, Assistant lecturer, B.S., B.M.T., University of Toledo, M.B.A., University of Toledo

Department of Physics and Astronomy

Jillian Bornak, 2013, Distinguished University Lecturer, B.A., Syracuse University; M.S., Ph.D., New Mexico State University

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Michael Cushing, 2011, Professor, B.S. Boston University, M.S., Ph.D., University of Hawaii

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Randall J. Ellingson, 2008, Distinguished University Professor, PVIC Endowed Chair and Interim Associate Chair, B.A., Carleton College; M.S., Ph.D., Cornell University

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Sanjay V. Khare, 2004, Professor, B.Sc. Bombay University (India); M.Sc. Indian Institute of Technology; Ph.D., University of Maryland, College Park

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College of Pharmacy and Pharmaceutical Sciences

Undergraduate Catalog 2026-2027

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419.530.2010

Health Science Campus
Frederic and Mary Wolfe Center 155
419.383.1904
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

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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. Graduates pursue careers in pharmaceutical and related industries, academia, regulatory affairs, healthcare, and pharmacy practice. Pharmacists provide patient care and collaborate with other healthcare professionals across a wide range 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 Doctor of Pharmacy (Pharm.D. (https://catalog.utoledo.edu/undergraduate/pharmacy-pharmaceutical-sciences/pharmacy-practice/

bsps-doctor-pharmacy/)) is the professional degree program leading to eligibility for pharmacist licensure. Students must complete two years of prerequisite coursework before applying for admission to the professional division of the CPPS.

Pharmaceutical Sciences

The CPPS offers a four-year Bachelor of Science in Pharmaceutical Sciences (B.S.P.S.) degree with majors in Cosmetic Science and Formulation Design and Drug Discovery and Design. These programs prepare students for a variety of careers in the pharmaceutical, biotechnology, cosmetic science, and related industries. Students complete two years of prerequisite coursework before entering the professional division of the CPPS. Following completion of the prerequisite coursework, UT pre-professional students progress to the professional division, while transfer students apply for admission.

- BSPS in Cosmetic Science and Formulation Design (PCOS) (p. 294)
- BSPS in Drug Discovery and Design
- Cosmetic Science Minor (p. 299)

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 Value Analytics
- Master of Science in Cosmetic Science and Formulation Design
- Master of Science in Forensic Toxicology
- 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

Multiple pathways are available for admission to programs in the professional division. Applicants should carefully follow the admission requirements and instructions applicable to their intended program and year of entry. Prospective and current students are encouraged to consult with an academic advisor for assistance. Prior to formal admission to the professional division, enrollment in courses offered by the College of Pharmacy and Pharmaceutical Sciences (CPPS) is restricted to 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 pre-professional students may progress to the professional division of the B.S.P.S. program, while eligible transfer students may apply for admission. Progression or admission is contingent upon satisfying the applicable requirements outlined below. Students seeking to declare a major and request a progression or admission review should contact the Office of Student Affairs for additional information.

Prior to entry into the professional division, the following courses, or approved 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 [1]	1
CHEM 1230	General Chemistry I	4
CHEM 1240	General Chemistry II	4
CHEM 1280	General Chemistry Lab I [1]	1
CHEM 1290	General Chemistry Lab II [1]	1
CHEM 2410	Organic Chemistry I	3
CHEM 2420	Organic Chemistry II [1]	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors [1]	1
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors [1]	1
MATH 1850	Single Variable Calculus I	4
or MATH 1750	Calculus For The Life Sciences With Applications I	
and MATH 1760		
MATH 2640	Statistics for Applied Science	3
or MATH 2600	Introduction To Statistics	
PHCL 2610	Introductory Physiology	3
or EXSC 2560	Anatomy and Physiology I	
and EXSC 2570		
PHYS 1750	Introduction To Physics [1]	4
or PHYS 2070	General Physics I	

ENGL 1110	College Composition I [1]	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse [1]	3
or ENGL 2950	Science And Technical Report Writing	
PSC 1210	American National Government and Civics	3
SOCW 1030	Introduction To Social Welfare (PharmD and DDAD ONLY)	3
or DST 2020	Introduction to Disability Studies	
ECON 1200	Principles Of Microeconomics (Cos Sci ONLY)	3

Students must have a minimum cumulative grade point average (GPA) of 2.5. Students with a cumulative GPA below 2.5 may be considered for entry into the professional division following review by program administrators. Following review, students may be permitted to enter the professional division, permitted conditional entry, or denied entry until the minimum GPA requirement is met.

With approval from program administrators, students who have not completed English Composition II, Organic Chemistry Laboratory I and/or II, or Introduction to Physics may be permitted to enroll in P1-year courses. Any outstanding prerequisite courses must be successfully completed 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. After submission of an honors application, 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. During the first two years of study (pre-professional division), 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 these first two years of the curriculum.

A variety of required and elective courses are also 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 within the major.

The Bachelor of Science in Pharmaceutical Sciences with College Honors is attainable by all students who follow the Blue Track (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:
  - HON 1010 – Ideas and Society (Humanities requirement)
  - HON 2010 – Multicultural Toledo (U.S. Diversity and Social Sciences requirement)
  - HON 3010 – Community Engagement or approved equivalent.
  - 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 3-5 hours of Honors Thesis (3 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, PHPR) may be taken. This requirement may be fulfilled by enrolling in a designated Honors section of the course or by completing an Honors contract arranged with a supervising faculty member, preferably within the first two weeks of the semester.
  - Honors Thesis MBC, PHCL, or PHPR 4960 (2 hour minimum)
  - Honors Seminar MBC, PHCL, or PHPR 4900 (1 hour minimum)
- Completion of an approved capstone experience under the direction of a faculty advisor. The capstone, as defined in consultation with the faculty advisor, may include a written thesis, oral presentation, poster presentation, media presentation, published work, or another appropriate scholarly or creative deliverable. The department of the faculty advisor determines the department in which Honors designation is awarded.
- Students who transfer into the College of Pharmacy and Pharmaceutical Sciences (CPPS) professional division as undergraduates may complete Departmental Honors with appropriate academic planning.

Student Responsibilities

Academic and Conduct Policies

The CPPS adheres to all University of Toledo policies and procedures. Students should refer to the University policy website for additional information regarding academic and conduct policies applicable to all students enrolled at the University. In cases 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 policies and procedures specific to the CPPS.

Refer to the University Undergraduate Academic Policies *(*https://www.utoledo.edu/policies/academic/undergraduate/*) that apply to all students.*

Attendance Requirements

Students enrolled in professional programs are expected to attend all class meetings. The maximum number of permissible absences in a course is determined by the course instructor. Penalties for excessive absences are determined by the instructor in accordance with the University's Missed Class Policy.

Withdrawal, GPA Recalculation, and Audit Policies

Students should refer to the University General Academic Policies for information regarding withdrawal, GPA recalculation, and audit policies applicable to all students. Withdrawal from an experiential course is not permitted once a final grade has been determined.

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 resulting from academic dishonesty, nor to improve a student's grade point average (GPA).

(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 required course. Opportunities to remediate laboratory or laboratory/lecture courses 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 post-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.

(F) Outcome of Post-Course Remediation: Upon successful completion of post-course remediation, the remediated content grade may be replaced with a grade not to exceed a C.

B.S.P.S. 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 students 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 resulting from academic dishonesty, nor to improve a student's grade point average (GPA).

(B) Procedure statement

Students may be eligible for post-course remediation if they earn a course grade of F after unsuccessful completion of in-course remediation in a required course. Opportunities to remediate laboratory or laboratory/lecture courses 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 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 post-course remediation and remediation planning

(D) Scope: This procedure applies to all students in the Bachelor of Science in Pharmaceutical Sciences (BSPS) Program of the College of Pharmacy and Pharmaceutical Sciences. Internship 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.

(F) Outcome of Post-Course Remediation: Upon successful completion of post-course remediation, the remediated content grade may be replaced with a grade not to exceed a D-.

Technology Requirements

CPPS students are required to have specific computer hardware, mobile devices, and software as described in the Student Handbook.

professional Fitness

Students enrolled in programs that prepare them for pharmacy practice and other healthcare-related professions are expected to demonstrate the ability to participate safely and effectively in academic, experiential, and professional activities and to fulfill their professional responsibilities.

When a student exhibits behavior that raises reasonable concerns about the student's ability to function safely, competently, or effectively in academic, experiential, patient care, or professional settings, the College may take appropriate action to evaluate and address those concerns. Such action will be based on observable behavior and its impact on the student's ability to meet applicable academic, technical, and professional standards and to protect the safety and well-being of the student and others.

The Associate Dean for Academic Affairs and/or the Associate Dean for Student Affairs will meet with the student to discuss the concerns and determine appropriate next steps in accordance with applicable University and College policies and procedures. Actions may include referral to appropriate University resources and support services, implementation of appropriate interventions or accommodations, or other measures consistent with applicable policies and procedures.

Ethical Responsibility

Students enrolled in pharmacy programs are expected to comply with applicable laws, regulations, and professional standards related to controlled substances, prescription medications, and other drugs. The unlawful possession, use, distribution, diversion, or sale of drugs, as well as the fraudulent use, alteration, or creation of prescriptions or other drug-related documents to obtain controlled substances or prescription medications, constitutes unprofessional conduct and may result in dismissal from the CPPS.

Drug-related offenses may also affect a student's eligibility for pharmacy intern licensure or registration and future pharmacist licensure, as determined by the applicable board of pharmacy or other regulatory authority.

Appeal Procedures for Academic Performance and Degree Progression for CPPS

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 Process 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 of the sanction notification to submit a petition for 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 (CPPS) provides general notice of prohibited conduct and of the sanctions that may be imposed when violations occur. The Student Code of Professional Conduct should be interpreted broadly and is not intended 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 must engage in responsible social and professional conduct that reflects positively upon the CPPS community and demonstrates good citizenship in all settings. Conduct by students or student organizations that disrupts the orderly functioning of the college or threatens the health, safety, or well-being of members of the college community will not be tolerated.

Delegation of Authority

The Dean of the College, or designee, is responsible for administering and implementing this procedure, including establishing and disseminating the standards of conduct published as "The Student Code of Professional Conduct". This code outlines the procedures and standards governing student conduct within the CPPS.

The Student Progress Committee is authorized to review each matter, determine whether a violation of the code has occurred, and issue appropriate sanction(s) when warranted. The Dean of the College is responsible for ensuring that any imposed sanctions are carried out.

Application

This procedure, along with the UToledo Student Code of Conduct, (see https://www.utoledo.edu/policies/main_campus/student_life/pdfs/3364-30-04.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 PharmD 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 PharmD 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 PharmD 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, 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 ≥ 2.0 until their cumulative UToledo GPA is ≥ 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, 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 (Cosmetic Sciences and Formulation Design, Drug Discovery and Design)

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 (BSPS) program 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 BSPS non-PharmD 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 (PharmD) Program in the following manner:
  - Maintaining minimum pharmacy required course cumulative GPA ≥ 2.75
  - Earning grade of C or better in all pharmacy required courses
  - Fulfilling any applicable PharmD 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 PharmD 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 ≥ 2.75
  - Earn a grade of C or better in all pharmacy required courses
  - Fulfill any applicable PharmD 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 BSPS degree. However, doing so would prevent the student from taking/retaking additional undergraduate courses toward achieving a PharmD degree, thus ending any opportunity to further pursue a PharmD degree at The University of Toledo.
  - If eligible, consider transferring to one of the tracks (Cosmetic Science and Formulation Design or Drug Discovery and Design) in the BSPS 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 cumulative GPA < 2.75.
  - Earning a grade less than a C in a pharmacy required course.
  - Failure to fulfill applicable PharmD 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 PharmD 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 PharmD 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 Completion Procedure).
  - If dismissed from the PharmD Program, the student may continue to earn a BSPS 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 PharmD program.

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. After all appeal options have been exhausted upon dismissal from the CPPS Doctor of Pharmacy program, readmission to the CPPS Doctor of Pharmacy program is not permitted.

7. Pharmacy Required Courses

- Pharmacy Required Course GPA Calculation:
  - The pharmacy required course GPA will consist of all required professional program pharmacy core-curriculum undergraduate and graduate 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 graduate level 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.

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 the first year of enrollment in the PharmD Program.

Please note that the requirements for good academic standing in the PharmD 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 PharmD 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. To ensure continued participation in the experiential program and full credit for hours earned, students must complete and maintain all required regulatory documentation. Failure to do so may result in delays in progression or the need to repeat experiences. These requirements may include immunizations and other

certain health documentation as well as licensures, certifications and background checks.

Specific details regarding the regulatory requirements are provided to all students during the admissions process 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. All students are required to complete an annual electronic attestation confirming that they have reviewed and understood the information provided.

Good Standing

The CPPS defines "good academic standing" in the following manner:

1. For all pre-professional and professional division students in the Bachelor of Science in Pharmaceutical Sciences program (Cosmetic Science and Formulation Design, and Drug Discovery and Design majors): maintaining a minimum cumulative GPA of 2.0 and a minimum term GPA of 2.0.
2. For students enrolled in the professional division of the Doctor of Pharmacy (PharmD) Program:
   a. Maintaining minimum pharmacy required course cumulative GPA ≥ 2.75
   b. Earning a grade of C or better in all pharmacy required courses
   c. Fulfilling any applicable PharmD 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 may justify an extension.

Student Grievances

STUDENT COMPLAINTS RELATED TO PHARMD ACCREDITATION STANDARDS

Student complaints specifically related to the 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. Paper complaint forms are available in the Office of Student Affairs. Alternatively, students could submit a complaint by clicking on this link (https://forms.office.com/pages/responsepage.aspx?id=BxdrHam6PUqo-N6r-z1Ge0bDn8cbvcRNputxeReoiBFUNjBBT0EyUVZGR0tKUlg5UDNBOUVVN1FDQy4u&route=shorturl).

The Associate Dean of Student Affairs will meet with the Dean of the College to review the complaint and consult with the complainant and individuals involved as necessary. 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 (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.acpe-accredit.org%2Fcomplaints%2Fdefault.asp&data=05%7C02%7CCathy.Zimmer%40utoledo.edu%7Cb0415ba4e8714b51d82c08de600c53c2%7C1d6b1707baa94a3da8f8deabfb3d4%7C0%7C0%7C639053803231173517%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXa%3D%3D%7C0%7C%7C%7C&sdata=j8IfylY2TBGhzy6fDv9Eu8Tcz5OveCpvFNaRCZPpzrk%3D&reserved=0) for more information.

A copy of the ACPE standards can be found here: https://www.acpe-accredit.org/wp-content/uploads/ACPEStandards2025.pdf.

UNDERGRADUATE STUDENT ACADEMIC GRIEVANCE PROCEDURE

Undergraduate student issues or complaints regarding specific courses should follow these steps when pursuing an academic grievance:

1. **STEP 1:** The student discusses the problem with the faculty member whom the student believes has taken improper action.
2. **STEP 2:** If resolution is not achieved, the student discusses the problem with the chair of the faculty member's department.
3. **STEP 3 (optional):** If the student wishes, the student may seek informal counsel from the president of student government.
4. **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 handling student academic grievances.
5. **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 the 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 fulfilling all degree requirements. Although advisors are available to assist, the ultimate responsibility rests with the student. The College of Pharmacy and Pharmaceutical Sciences reserves the right to modify its policies, procedures, curricula, and requirements at any time. Such changes become effective upon approval by faculty action.

Courses completed at another college of pharmacy may not be used to satisfy required professional division coursework. Prior to admission to the professional division, students may enroll only in designated 1000- and 2000-level CPPS courses for which they meet all prerequisites and restrictions. Enrollment in all 3000- and 4000-level CPPS courses is restricted to students admitted to the professional division.

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

The College of Pharmacy and Pharmaceutical Sciences (CPPS) offers the Bachelor of Science in Pharmaceutical Sciences (B.S.P.S.), a four-year baccalaureate degree program that provides students with a foundation in the scientific disciplines underlying the discovery, development, formulation, evaluation, and use of pharmaceutical products.The B.S.P.S. program offers the following:

- Cosmetic Science and Formulation Design (PCOS) minor
- Cosmetic Science and Formulation Design (PCOS)
- Drug Discovery and Design (DDAD)

The B.S.P.S. program prepares graduates for careers in pharmaceutical, biotechnology, cosmetic and personal care products, biomedical, and related industries, as well as careers in research, regulatory affairs, administration, and other areas related to the pharmaceutical sciences. The program also provides preparation for graduate education and professional degree programs in fields such as medicine, dentistry, law, and physician assistant studies.

General Program Requirements

A minimum of 120 semester hours is required for graduation from all non-PharmD Bachelor of Science in Pharmaceutical Sciences majors.

Pre-Pharamcy Division Requirements

During the pre-professional portion of the B.S.P.S. program, students complete foundational coursework in the natural sciences, arts, humanities, and social sciences, with an emphasis on the natural sciences. The pre-professional curricula for the B.S.P.S. and Pharm.D. programs include many common requirements.

College of Pharmacy & Pharmaceutical Sciences (CPPS) Pre-Pharmacy (PREP) Curriculum
Applying to Professional Division (P1) for Fall 2018 or after

Course	Title	Hours
First Term		
Fall 1st PREP Year		
PHPR 1000	Orientation [1]	1
MATH 1850 or MATH 1750	Single Variable Calculus I or Calculus For The Life Sciences With Applications I	4
and MATH 1760		
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
PSC 1210	American National Government and Civics	3
ENGL 1110	College Composition I	3
	Hours	**16**
Second Term		
Spring 1st PREP Year		
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 or ENGL 2950	College Composition II: Academic Disciplines And Discourse or Science And Technical Report Writing	3
UT Core Requirement (US Diversity) (Cos Sci ONLY) [2]		
	Hours	**13**
Third Term		
Fall 2nd PREP Year		

CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
PHYS 1750 or PHYS 2070	Introduction To Physics [1] or General Physics I	4
MATH 2640 or MATH 2600	Statistics for Applied Science or Introduction To Statistics	3
UT Core Requirement (Social Science) [2]		3
ECON 1200 for Cos Sci		
SOCW 1030 or DST 2020 for DDAD and PharmD [3]		
	Hours	**14**
Fourth Term		
Spring 2nd PREP Year		
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
PHCL 2610 or EXSC 2560 and EXSC 2570	Introductory Physiology or Anatomy and Physiology I	3
UT Core Requirement (Humanities/Fine Arts) [2]		3
UT Core Requirement (Humanities/Fine Arts) [2]		3
UT Core Requirement (Non-US Culture) [2]		3
	Hours	**16**
	Total Hours	**59**

1 Only offered during fall semesters.
2 If double-dip, PREP courseload reduced by 3 hours.
3 Fulfills UT Social Science and Multicultural Diversity of US Culture Core Requirement.

Professional Division Requirements

During the final two years of the B.S.P.S. program, students complete advanced coursework specific to their major and a required internship experience. The professional division curriculum provides students with specialized knowledge, skills, and practical experience that prepare them for careers in pharmaceutical sciences and related fields or for further graduate or professional education. Requirements for progression or admission to the professional division are described under General Criteria for Progression to the Professional Division of the BSPS Program.

Doctor of Pharmacy (Pharm D)

The Doctor of Pharmacy (Pharm.D.) is the professional degree program that prepares graduates for eligibility for pharmacist licensure. Students must complete the required prerequisite coursework before applying for admission to the professional division of the College of Pharmacy and Pharmaceutical Sciences (CPPS). Admission to the professional division is competitive.

Following admission to the professional division, students complete the requirements for the Bachelor of Science in Pharmaceutical Sciences (B.S.P.S.)–Pharm.D. track before progressing to the final two years of the Doctor of Pharmacy (Pharm.D.) program, which emphasize pharmacotherapy, patient care, and the practice of pharmacy.

To graduate with the Pharm.D. degree, students must successfully complete all required coursework and experiential education requirements and meet the academic and professional standards of the program. Graduates of the Pharm.D. program may pursue pharmacist licensure upon meeting all applicable jurisdiction-specific requirements. The Pharm.D. 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 [1]	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		
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 [3]		3
	Hours	**17**
Third Term		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
PHYS 1750	Introduction To Physics [1]	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Social Sciences Core [3]		3
	Hours	**14**
Fourth Term		
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
Social Sciences Core [3]		3
Arts/Humanities Core [3]		3
Arts/Humanities Core [3]		3

Non-US Diversity [3]		3
	Hours	**16**
	Total Hours	**62**

1 Only offered during Fall semesters.
2 Not required prior to P1 for BSPS-only applicants.
3 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
	Hours	**18**
Sixth Term		
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.

Ninth Term		**Hours**
Institutional IPPEs		
	Hours	**0**
Tenth Term		
PHPR 6000	Drug Information Seminar ((Fall or Spring)) [2]	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 [1]		4
PHM 6000	Integrated Pharmaceutical and Clinical Sciences 4	7
	Hours	**17**
Eleventh Term		
PHPR 6000	Drug Information Seminar ((Fall or Spring)) [2]	-
PHPR 6250	Advanced Self Care [3]	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 [1]		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**

[1] A total of 7 credit hours of Graduate Professional Electives is required.
[2] This course may be taken in Fall or Spring, making the program a total of 69 hours.
[3] 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
MBC		
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	Biomedicinal Chemistry	4
MBC 6400	Cannabis Science: Plants and Products	3
MBC 6980	Special Topics In Biomedicinal Chemistry	1-5
PHCL		
PHCL 5730	Principles and Systems Toxicology	3
PHCL 5750	Environmental, Food, and Analytical Toxicology	3
PHCL 5990	Problems In Pharmacology	1-6
PHCL 6400	Cannabis Science – Risks & Benefits	3
PHCL 6600	Seminar In Pharmacology	1
PHPR		
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 5940	Managed Care Pharmacy Elective	1
PHPR 5960	Advocacy in the Pharmacy Profession	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		3
PHPR 6700	Special Topics in Diabetes Care	2
PHPR 6950	Seminar In Industrial Pharmacy	1
PHPR 6980	Special Topics	1-5
PHM		
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		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		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

The CPPS and COBI work collaboratively to allow Pharm.D. students to earn their MBA by integrating Pharm.D. electives into the MBA program.

1. Students may take 15 IPPE hours, completed with pre-determined objectives that align with the MBA, and apply them towards 1 credit hour of MBA elective credit.
2. Students may take two APPE rotations during their P4 within the administration, leadership, or management tract to count towards 8 credit hours of MBA elective credit.
   a. The combination of IPPE and APPE rotations as described above will satisfy the 9 credit hour requirement for MBA electives.

Department of Medicinal and Biological Chemistry

Dr. L.M. Viranga Tillekeratne, Chair

Faculty in the Department of Medicinal and Biological Chemistry engage in research spanning the design and synthesis of drugs targeting neurotransmitter receptors, the development of novel therapeutics for cancer and infectious diseases, and other areas of medicinal and biological chemistry. The department provides access to advanced instrumentation and facilities that support organic chemical and

macromolecular synthesis and analysis, molecular graphics, and imaging. These resources are available to students engaged in graduate research.

Degrees Offered

- BSPS in Drug Discovery and Design (p. 286)

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 Biomedicinal Chemistry Laboratory
[1-10 credit hours]
Research experience in biomedicinal 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 Biomedicinal Chemistry
[1-3 credit hours]
Selected study of topics in biomedicinal 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 in Drug Discovery and Design

Drug Discovery and Design prepares students to discover, develop, and evaluate pharmaceutical therapies that address a wide range of patient needs and health challenges. The curriculum combines foundational and applied coursework in pharmacology and toxicology, medicinal and biological chemistry, pharmaceutics, and healthcare delivery, while offering opportunities for research, experiential learning, and professional development.

Aside from the robust career prospects in the pharmaceutical industry, the Drug Discovery and Design program also serves as an excellent foundation for students pursuing advanced study in graduate programs and professional schools, including medical, physician assistant (PA), veterinary, and dental programs.

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) Pharmaceutics, 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

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	Principles and Systems Toxicology	3
PHCL 4810	BSPS Pharmacology III: CNS and Cardiovascular Pharmacology	3

Combined bachelor's to master's - BSPS in Drug Discovery and Design to Master's of Science in Pharmaceutical Science

Undergraduate students accepted to the BSPS in Drug Discovery and Design to Master's of Science in Pharmaceutical Science (MSPS) Pipeline option will be admitted to MSPS and allowed to complete up to three graduate level classes (nine credit hours) during their final two academic years 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) PHM 5100, PHM 5110, and PHCL 6710 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- BSPS in Drug Discovery and Design to Master's of Science in Cosmetic Science and Formulation Design (MS CoSci)

Undergraduate students accepted to the **BSPS in Drug Discovery and Design to Master's of Science in Cosmetic Science and Formulation Design (MS CoSci) Pipeline** option will be admitted to **MS CoSci** and allowed to complete up to three graduate level classes (nine credit hours) during their final two academic years 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) PHPR 5800, PHCL 6710, and PHPR 5830 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- BSPS in Drug Discovery and Design to Master's of Science in Medicinal Chemistry (MS MC)

Undergraduate students accepted to the **BSPS in Drug Discovery and Design to Master's of Science in Medicinal Chemistry (MS MC) Pipeine** option will be admitted to the **Master's of Science in Medicinal Chemistry (MS MC)** and allowed to complete up to three graduate level classes (nine credit hours) during their final two academic years 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) MBC 6190, MBC 6200, and MBC 5900 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.

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
	Hours	**15**
Second Term		
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 [3]		3
	Hours	**17**
Third Term		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
PHYS 1750	Introduction To Physics [1]	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse [*]	3
Social Sciences Core [3]		3
	Hours	**14**
Fourth Term		
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
Social Sciences Core [3]		3
Arts/Humanities Core [3]		3
Arts/Humanities Core [3]		3
Non#US Diversity [3]		3
	Hours	**16**
	Total Hours	**62**

[1] Only offered during fall semesters

[2] Not required prior to P1 for BSPS-only applicants

[3] 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
	Hours	**14-17**
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 [1]		0-2
Professional elective (MBC 3860, Microbiology for Pharmaceutical Professionals, recommended)		
	Hours	**15-17**
Seventh Term		
PHM 4780	Internship in Drug Discovery and Design [1]	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	**3**
Eighth Term		
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	Principles and Systems Toxicology	3
PHCL 4810	BSPS Pharmacology III: CNS and Cardiovascular Pharmacology	3
Professional Elective		3-5
	Hours	**15-17**
Ninth Term		
Professional Elective - to complete 13 hours		0-4

Free Elective (if necessary to complete 120 hours)	0-4
Hours	**0-8**
Total Hours	**47-62**

[1] 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		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 Biomedicinal Chemistry	1-3
MBC 4950	Research In Medicinal Chemistry	3-8
MBC 4960	Honors Thesis In Medicinal And Biological Chemistry	1-5
MBC 5900	Medicinal Chemistry Seminar	1
MBC 6190	Advanced Medicinal Chemistry	4
MBC 6200	Biomedicinal Chemistry	4
PHCL 4160	Biopharmaceutics & Pharmacokinetics	3
PHCL 4400	Cannabis Science – Risks & Benefits	3
PHCL 4750	Environmental, Food, and Analytical Toxicology	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
PHCL 6710	Fundamentals of Biostatistics and Research Analysis	3
PHPR 4900	Honors Seminar In Pharmacy Practice	1-3
PHPR 3110	Pharmaceutics Lab I	1
PHPR 3120	Pharmaceutics Lab II	1
PHPR 3700	Regulatory and Formulation Science in Skincare	3
PHPR 4910	Pharmacy Practice Problems	1-5
PHPR 4960	Honors Thesis In Pharmacy Practice	2-5
PHPR 5800	Cosmetic Ingredients and Product Forms	3
PHM 5100	Research in Pharmaceutical Science: Ethics & Methods	3
PHPR 5830	Cosmetic Regulations, Ethics, and Practices	3
PHM 5110	Clinical Trials and Regulatory Affairs	3
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.

Department of Pharmacy Practice

Dr. Martin Ohlinger, Chair

The Department of Pharmacy Practice includes faculty with expertise in pharmacy practice, health outcomes and socioeconomic sciences, cosmetic science and formulation design, pharmaceutics, and industrial pharmacy. The department contributes to the Cosmetic Science and Formulation Design and Drug Discovery and Design majors within the

Bachelor of Science in Pharmaceutical Sciences (B.S.P.S.) program, graduate education in the pharmaceutical sciences, and the Doctor of Pharmacy (Pharm.D.) curriculum. Faculty engage in teaching, research and scholarship, patient care, and professional service across a variety of disciplines and practice settings.

A broad network of pharmacists and other healthcare professionals complements the department's full-time faculty by serving as preceptors and providing experiential education and training across a variety of practice settings.

Degrees Offered

- BSPS in Cosmetic Science and Formulation Design (PCOS) (p. 294)
- BSPS in Drug Discovery and Design (p. 286)
- BSPS Cosmetic Science and Formulation Design Pathway to Masters Program in Cosmetic Science and Formulation Design (p. 298)
- BSPS Drug Discovery and Design Pathways to Master's Programs (p. 298)
- Cosmetic Science Minor (p. 299)

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 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 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

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: 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 3070 Pharmaceutics 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 3110 Pharmaceutics 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 Pharmaceutics 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 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 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 with 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 3700 Regulatory and Formulation Science in Skincare
[3 credit hours]
Overview of three major topics: United States cosmetic regulations, emulsion science and formulation basics, and skin care science.
Prerequisites: PHPR 3040 with a minimum grade of D-
Term Offered: Spring, Summer, 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 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 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 Phrmaceutical 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 Adminstration
[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 1. 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 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 [4]	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
	Hours	**15**
Second Term		
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 [3]		3
	Hours	**17**
Third Term		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
PHYS 1750	Introduction To Physics [1]	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Social Sciences Core		3
	Hours	**14**
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 [3]		3

1 Only offered during fall semesters 2 Not required prior to P1 for BSPS-only applicants 3 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, MATH1320 or MATH1750 and/or placing into a lower level chemistry - CHEM 1090 (based on students' testing scores) will require additional hours for graduation.

	Hours	**16**
	Total Hours	**62**

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 [1]	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
	Hours	**14**
Sixth Term		
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 [4]	3
Cosmetic Science	Elective [3]	3
	Hours	**14**
Seventh Term		
PHPR 4890	Internship in Cosmetic Science and Formulation Design [2]	3-6
	Hours	**3-6**
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 [3]	9
	Hours	**14**
	Total Hours	**61-64**

1 If not taken during pre-professional division.
2 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.
3 See Cosmetic Science elective list.
4 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		1
PHPR 3500		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		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 Cosmetic Science and Formulation Design Pathway to Masters Program in Cosmetic Science and Formulation Design

Undergraduate students accepted to the B.S.P.S. in Cosmetic Science and Formulation Design 4+1 Pathway to the Master of Science in Cosmetic Science and Formulation Design Pipeline Program may complete up to three graduate-level courses (nine credit hours) during their final academic year of undergraduate study. Students admitted to the Pipeline program must apply for admission to the College of Graduate Studies for the semester in which they intend to matriculate. They will then continue into the graduate program upon completion of all undergraduate degree requirements. The graduate coursework (up to nine credit hours) may be applied toward both undergraduate and graduate degree requirements.

It is the joint responsibility of the faculty and administrators in the undergraduate and graduate programs to supervise students admitted to the combined program, ensure that the limit of nine graduate credit hours taken as an undergraduate is strictly enforced, and request that the College of Graduate Studies change the student's matriculation status from undergraduate to graduate once all undergraduate degree requirements have been met.

The following provisions apply to courses taken for graduate credit: (1) graduate courses must be completed at The University of Toledo after the student has been accepted to the Pipeline program; and (2) PHPR 5800 Cosmetic Ingredients and Product Forms, PHPR 5820 Cosmetic Trends and Claims, and PHPR 5830 Cosmetic Regulations, Ethics, and Practices may be included in the approved nine semester hours of graduate credit completed as an undergraduate. Students interested in the combined program must submit a graduate admission application to the College of Graduate Studies.

BSPS Drug Discovery and Design Pathways to Master's Programs

Combined bachelor's to masters - BSPS in Drug Discovery and Design to Masters Options

Admissions

Students must meet the requirements for progression or admission to the professional division of the Bachelor of Science in Pharmaceutical Sciences (B.S.P.S.) Drug Discovery and Design major. At the beginning of the second semester of the first professional year, students may apply for provisional admission to their intended master's program. Upon completion of the B.S.P.S. degree and satisfaction of all admission requirements for the selected master's program, students may be formally admitted to the graduate program.

BSPS in Drug Discovery and Design to Masters of Science in Cosmetic Science and Formulation Design (MS CoSci)

Undergraduate students accepted to the B.S.P.S. in Drug Discovery and Design to Master of Science in Cosmetic Science and Formulation Design (M.S. CoSci) Pipeline option will be admitted to the M.S. CoSci program and allowed to complete up to three graduate-level classes (nine credit hours) during their final two academic years of undergraduate study. Students admitted to the Pipeline program must apply for admission to the College of Graduate Studies for the semester in which 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 credit hours) may be applied toward 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, ensure that the limit of nine credit hours taken as an undergraduate is strictly enforced, and request that the College of Graduate Studies change their matriculation status from undergraduate to graduate once 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 into ~~in~~ the program, 2) PHPR 5800, PHCL 6710, and PHPR 5830 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.

BSPS in Drug Discovery and Design to Masters of Science in Medicinal Chemistry (MS MC)

Undergraduate students accepted to the B.S.P.S. in Drug Discovery and Design to Master of Science in Medicinal Chemistry (M.S. MC) Pipeline option will be admitted to the M.S. in Medicinal Chemistry program and allowed to complete up to three graduate-level classes (nine credit hours) during their final two academic years of undergraduate study. Students admitted to the Pipeline program must apply for admission to the College of Graduate Studies for the semester in which 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 credit hours) may be applied toward 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, ensure that the limit of nine credit hours taken as an undergraduate is strictly enforced, and request that the College of Graduate Studies change their matriculation status from undergraduate to graduate once 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) MBC 6190, MBC 6200, and MBC 5900 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.

BSPS in Drug Discovery and Design to Masters of Science IN Health Outcomes and Value Analytics

Undergraduate students accepted to the B.S.P.S. in Drug Discovery and Design to Master of Science in Health Outcomes and Value Analytics

Pipeline option will be admitted to the M.S. in Health Outcomes and Value Analytics program and allowed to complete up to three graduate-level classes (nine credit hours) during their final two academic years of undergraduate study. Students admitted to the Pipeline program must apply for admission to the College of Graduate Studies for the semester in which 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 credit hours) may be applied toward 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, ensure that the limit of nine credit hours taken as an undergraduate is strictly enforced, and request that the College of Graduate Studies change their matriculation status from undergraduate to graduate once 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) PHM 5100, PHM 5110, and PHCL 6710 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.

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
A) Required courses		**9**
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) Elective courses		**6**
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	
Total Hours		**15**

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 students 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 integrates basic and applied research in the pharmaceutical sciences into its academic programs and contributes to the education and training of students across the College. The department contributes to the Drug Discovery and Design major within the Bachelor of Science in Pharmaceutical Sciences (B.S.P.S.) program, offers graduate programs in the pharmaceutical sciences, and contributes to the Doctor of Pharmacy (Pharm.D.) curriculum. Coursework encompasses a broad range of disciplines, including pharmacology, toxicology, drug development, and experimental therapeutics. Faculty research interests include toxicology, pharmacokinetics, biopharmaceutics, neurochemistry, behavioral neuropharmacology, molecular pharmacology, gene therapy, drug metabolism, and cardiovascular and renal pharmacology.

Pharmacology and toxicology are biomedical sciences concerned with understanding the effects of drugs and other chemicals on living systems. Pharmacology focuses on the properties, effects, mechanisms of action, and therapeutic uses of drugs. Toxicology focuses on the adverse effects of chemicals and other substances, including exposure assessment, dose-response relationships, and hazard identification.

Degrees Offered

- BSPS in Drug Discovery and Design (p. 286)

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 discover, develop, and evaluate pharmaceutical therapies that address a wide range of patient needs and health challenges. The curriculum combines foundational and applied coursework in pharmacology and toxicology, medicinal and biological chemistry, pharmaceutics, and healthcare delivery, while

offering opportunities for research, experiential learning, and professional development.

Aside from the robust career prospects in the pharmaceutical industry, the Drug Discovery and Design program also serves as an excellent foundation for students pursuing advanced study in graduate programs and professional schools, including medical, physician assistant (PA), veterinary, and dental programs.

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) Pharmaceutics, 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

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	Principles and Systems Toxicology	3
PHCL 4810	BSPS Pharmacology III: CNS and Cardiovascular Pharmacology	3

Combined bachelor's to master's - BSPS in Drug Discovery and Design to Master's of Science in Pharmaceutical Science

Undergraduate students accepted to the BSPS in Drug Discovery and Design to Master's of Science in Pharmaceutical Science (MSPS) Pipeline option will be admitted to MSPS and allowed to complete up to three graduate level classes (nine credit hours) during their final two academic years 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) PHM 5100, PHM 5110, and PHCL 6710 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- BSPS in Drug Discovery and Design to Master's of Science in Cosmetic Science and Formulation Design (MS CoSci)

Undergraduate students accepted to the **BSPS in Drug Discovery and Design to Master's of Science in Cosmetic Science and Formulation Design (MS CoSci) Pipeline** option will be admitted to **MS CoSci** and allowed to complete up to three graduate level classes (nine credit hours) during their final two academic years 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) PHPR 5800, PHCL 6710, and PHPR 5830 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- BSPS in Drug Discovery and Design to Master's of Science in Medicinal Chemistry (MS MC)

Undergraduate students accepted to the **BSPS in Drug Discovery and Design to Master's of Science in Medicinal Chemistry (MS MC) Pipeine** option will be admitted to the **Master's of Science in Medicinal Chemistry (MS MC)** and allowed to complete up to three graduate level classes (nine credit hours) during their final two academic years 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) MBC 6190, MBC 6200, and MBC 5900 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.

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
	Hours	**15**
Second Term		
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 [3]		3
	Hours	**17**
Third Term		
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
PHYS 1750	Introduction To Physics [1]	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse *	3
Social Sciences Core [3]		3
	Hours	**14**
Fourth Term		
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
Social Sciences Core [3]		3
Arts/Humanities Core [3]		3
Arts/Humanities Core [3]		3
Non#US Diversity [3]		3
	Hours	**16**
	Total Hours	**62**

[1] Only offered during fall semesters
[2] Not required prior to P1 for BSPS-only applicants
[3] 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
	Hours	**14-17**
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 [1]		0-2
Professional elective (MBC 3860, Microbiology for Pharmaceutical Professionals, recommended)		
	Hours	**15-17**
Seventh Term		
PHM 4780	Internship in Drug Discovery and Design [1]	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	**3**
Eighth Term		
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	Principles and Systems Toxicology	3
PHCL 4810	BSPS Pharmacology III: CNS and Cardiovascular Pharmacology	3
Professional Elective		3-5
	Hours	**15-17**
Ninth Term		
Professional Elective - to complete 13 hours		0-4
Free Elective (if necessary to complete 120 hours)		0-4
	Hours	**0-8**
	Total Hours	**47-62**

[1] 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		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 Biomedicinal Chemistry	1-3
MBC 4950	Research In Medicinal Chemistry	3-8
MBC 4960	Honors Thesis In Medicinal And Biological Chemistry	1-5
MBC 5900	Medicinal Chemistry Seminar	1
MBC 6190	Advanced Medicinal Chemistry	4
MBC 6200	Biomedicinal Chemistry	4

PHCL 4160	Biopharmaceutics & Pharmacokinetics	3
PHCL 4400	Cannabis Science – Risks & Benefits	3
PHCL 4750	Environmental, Food, and Analytical Toxicology	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
PHCL 6710	Fundamentals of Biostatistics and Research Analysis	3
PHPR 4900	Honors Seminar In Pharmacy Practice	1-3
PHPR 3110	Pharmaceutics Lab I	1
PHPR 3120	Pharmaceutics Lab II	1
PHPR 3700	Regulatory and Formulation Science in Skincare	3
PHPR 4910	Pharmacy Practice Problems	1-5
PHPR 4960	Honors Thesis In Pharmacy Practice	2-5
PHPR 5800	Cosmetic Ingredients and Product Forms	3
PHM 5100	Research in Pharmaceutical Science: Ethics & Methods	3
PHPR 5830	Cosmetic Regulations, Ethics, and Practices	3
PHM 5110	Clinical Trials and Regulatory Affairs	3
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.

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

Endri Karaj, 2026, Assistant Professor, B.S. in Pharmacy, University of Patras, Greece; Ph.D. University of Toledo

Susanne Nonekowski, 2009, Distinguished University Lecturer and Director, Drug Discovery and Design Program, B.S., State University of New York College (SUNY) at Buffalo; M.S., Ph.D., University of Michigan

Steven M. Peseckis, 1994, Associate Professor and Director, College Honors Program, B.S., Dartmouth College; Ph.D., Massachusetts Institute of Technology

Erin G. Prestwich, 2016, Associate 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, Associate Dean for Graduate Education and Research, B.S., University of Kashmir; M.S., Ph.D., Hamdard University

L.M.V. Tillekeratne, 2006, Professor and Chair, B.S. Chemistry, University of Colombo, Sri Lanka, Ph.D., Oxford University, UK

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, Germany

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, France

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Wayne P. Hoss, 1985, Distinguished University Professor Emeritus, B.S., University of Idaho; Ph.D., University of Nebraska

Richard A. Hudson, 1985, Distinguished University Professor Emeritus, B.A., Kalamazoo College; Ph.D., University of Chicago

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Department of Pharmacy Practice

Sarah M. Aldrich Renner, 2018, Associate Lecturer, Pharm.D., Ohio Northern University; BCACP

Gabriella Baki, 2014, Professor, MA, PhD., Pharm.D., University of Szeged, Hungary

Katlyn R. de Vries, 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

Daniel Erku, 2026, Assistant Professor, B. Pharm., University of Gondar, Ethiopia; Ph.D. The University of Queensland, Australia

David Foote, 2025, Assistant Professor, Pharm.D., University of Texas at Tyler

Monica G. Holiday-Goodman, 1988, Professor, Associate Dean for Student Affairs, B.S. Pharm., Ph.D., Northeast Louisiana University

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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

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Emeritus faculty

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Vincent F. Mauro, 1985, Distinguished University Professor Emeritus, B.S. Pharm., Ohio Northern University; Pharm.D., The Ohio State University; FCCP

Mary F. Powers, 2002, Distinguished University Professor Emerita, B.S. Pharm., The University of Toledo; Ph.D., Medical College of Ohio

Jesup Scott Honors College

2026-2027 Academic YeAR

University Hall 4580
MS 504
419.530.6180
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 - one conducive to growth and discovery in an atmosphere of rigorous scholarship and intellectual innovation.

Contacts

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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 and talented students.

We accept applicants from all academic colleges and majors. You can still graduate on time if you enroll in the Honors College.

Benefits of enrolling in the Honors College include:

- Specialized Honors courses that offer small group and discussion-based learning
- Focus on critical thinking about real-world issues
- Courses in your major featuring an enhanced Honors scope and depth
- Priority course registration
- Faculty mentorship
- Honors experiential learning grants
- Professional growth and networking
- Unique study abroad and research opportunities
- Exciting on-campus programming and off-campus excursions through the Honors Learning Community.

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 the Honors College. You will have an opportunity to detail any circumstances that might have shaped your GPA in the Honors section of your application.

- **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 joining the Honors College and include the Honors application. If you did not apply to the Honors College through either, email honors@utoledo.edu (honors@utoledo.edu?subject=) to receive 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.

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. We will send you the Honors College application link for current students.

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. We will send you the Honors College application link for incoming students.

QUESTIONS?

Contact us at 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
3364-71-04.01 Academic dishonesty procedure
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
3364-71-07.01 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
3364-71-28 The University of Toledo SROTC housing financial offset incentive policy procedure
3364-71-29 Guidelines on authorship policy
3364-71-30 Religious accommodations
3364-71-30.01 Procedure - religious accommodations
3364-71-31 Course scheduling
3364-71-31.01 Course scheduling procedure
3364-71-32 Transfer credit
3364-71-32.01 Procedure - transfer credit
3364-71-33 Intellectual diversity and controversial beliefs
3364-72-54 Assessment of student learning

Honors College Policies

GPA Warning & Ineligibility Policy: This policy enforces the expectations the Honors College 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 the student's major.
- 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 degree-granting colleges.

- Of the 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 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/or 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 instructor for Honors credit through use of an Honors Learning Contract (https://www.utoledo.edu/honors/learning-contracts.html).
- Earn a minimum overall UToledo GPA of 3.3 (a major GPA higher than a 3.3 may be required by the student's department).
- Complete an Honors thesis or capstone project (https://www.utoledo.edu/honors/thesis-capstone.html).
- Complete any additional requirements for Honors set by the student's department or degree-granting college.

* For a definitive listing of the JSHC requirements by degree-granting college, 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 Medallion Requirements by Degree-Granting College

BLUE TRACK Curriculum - Pre-professional

	JHCASE	COBI	CENG	CHHS	CNSM	CPPS	UC
Ideas and Society - HON 1010 (HUM)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Innovation and Society - HON 1020 (HUM)	-	-	-	-	-	-	-
Multicultural Toledo - HON 2010 (SOC, USMC)	HON 2010 OR HON 2020 OR HON 2030	Yes	Yes	Yes	HON 2010 OR HON 2020 OR HON 2030	Yes	HON 2010 OR HON 2020 OR HON 2030
The North American Experience - HON 2020 (US MC, WAC)	HON 2010 OR HON 2020 OR HON 2030	-	-	-	HON 2010 OR HON 2020 OR HON 2030	-	HON 2010 OR HON 2020 OR HON 2030
The Non-European World - HON 2030 (NW MC, WAC)	HON 2010 OR HON 2020 OR HON 2030	-	-	-	HON 2010 OR HON 2020 OR HON 2030	-	HON 2010 OR HON 2020 OR HON 2030
Community Engagement - HON 3010 (pre-req: 1 HON MC)	HON 3010 OR HON 4950 OR HON 4960	Yes	Yes	HON 3010 OR HON 4950 OR HON 4960	HON 3010 OR HON 4950 OR HON 4960	Yes	HON 3010 OR HON 4950 OR HON 4960
Honors Seminars - HON 4950 & HON 4960	HON 3010 OR HON 4950 OR HON 4960	-	-	HON 3010 OR HON 4950 OR HON 4960	HON 3010 OR HON 4950 OR HON 4960	-	HON 3010 OR HON 4950 OR HON 4960
Honors Credits Earned in HON Courses	9	9	9	9	9	9	9

Honors Credits Earned Outside of Honors College Core Courses	18	18	18	18	18	18	18
Total Honors Credit Hours	27	27	27	27	27	27	27
Honors Thesis/ Capstone Project	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Minimum Cumulati GPA	> 3.3*	> 3.3*	> 3.3*	> 3.3*	> 3.3*	> 3.3*	> 3.3*

1 *Some departments have a higher required major GPA as part of their departmental Honors requirements (which must be satisfied, where applicable, to earn College Honors).

2 Most departments/colleges have specified requirements beyond these JSHC criteria. Contact your College Honors Director for more information.

3 Students in "Blue track" colleges may decide to opt-in to the "Gold track" as long as their college's "Blue track" requirements are also satisfied.

GOLD TRACK Curriculum - Comprehensive

	JHCASE	COBI	CENG	CHHS	CNSM	CPPS	UC
Ideas and Society - HON 1010 (HUM)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Innovatio and Society - HON 102((HUM)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multicultura Toledo - HON 2010 (SOC, US MC)	HON 2010 OR HON 2020 OR HON 2030	Yes	Yes	Yes	HON 2010 OR HON 2020 OR HON 2030	Yes	HON 2010 OR HON 2020 OR HON 2030
The North American Experienc - HON 202((US MC, WAC)	HON 201(OR HON 2020 OR HON 2030	-	-	-	HON 201(OR HON 2020 OR HON 2030	-	HON 2010 OR HON 2020 OR HON 2030
The Non-European	HON 2010 OR HON	-	-	-	HON 2010 OR HON	-	HON 2010 OR HON
World - HON 2030 (NW MC, WAC)	2020 OR HON 2030				2020 OR HON 2030		2020 OR HON 2030
Communi Engagem - HON 301((pre-req: 1 HON MC)	Two (HON 301 and 1 Seminar OR 2 Seminars	Yes	Yes	Two (HON 301 and 1 Seminar OR 2 Seminars	Two (HON 301 and 1 Seminar OR 2 Seminars	Yes	Two (HON 3010 and 1 Seminar OR 2 Seminars)
Honors Seminars - HON 4950 & HON 4960	Two (HON 3010 and 1 Seminar OR 2 Seminars)	1 Seminar (beyond HON 3010)	1 Seminar (beyond HON 3010)	Two (HON 3010 and 1 Seminar OR 2 Seminars)	Two (HON 3010 and 1 Seminar OR 2 Seminars)	1 Seminar (beyond HON 3010)	Two (HON 3010 and 1 Seminar OR 2 Seminars)
Honors Credits Earned in HON Courses	15	15	15	15	15	15	15
Honors Credits Earned Outside of Honors College Core Courses	12	12	12	12	12	12	12
Total Honors Credit Hours	27	27	27	27	27	27	27
Honors Thesis/ Capstone Project	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Minimum Cumulati GPA	> 3.3*	> 3.3*	> 3.3*	> 3.3*	> 3.3*	> 3.3*	> 3.3*

1 *Some departments have a higher required major GPA as part of their departmental Honors requirements (which must be satisfied, where applicable, to earn College Honors).

2 Most departments/colleges have specified requirements beyond these JSHC criteria. Contact your College Honors Director for more information.

3 Students in "Blue track" colleges may decide to opt-in to the "Gold track" as long as their college's "Blue track" requirements are also satisfied.

JHCASE: Judith Herb College of Arts, Social Sciences, and Education, **COBI:** College of Business and Innovation, **CENG:** College of Engineering, **CHHS:** College of Health and Human Services, **CNSM:** College of Natural Sciences and Mathematics, **CPPS:** 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

John B. and Lillian E. Neff College of Business and Innovation

Undergraduate Catalog 2026-2027

Stranahan Hall and Savage & Associates Business Complex
419.530.2558
CoBusiness@UToledo.edu (CoBusiness@UToledo.Edu)

Mission Statement

The John B. and Lillian E. Neff College of Business and Innovation integrates business education, meaningful research and diverse partnerships to foster tomorrow's leaders, transform businesses, and support the regional and global community.

Contacts

Administration

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419.530.5426

Academic Departments

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Applied Organizational Technology 419.530.3246
Interim Chair: Dr. Steve Wallace, 419-530-2054

Finance 419.530.2277
Dr. Kainan Wang, 419.530.4317

Information Operations Technology Management 419.530.2420
Chair: Dr. Steve Wallace, 419.530.2054

Marketing and International Business 419.530.2098
Interim Chair: Dr. Laurence Fink, 419.530.2266

Management 419.530.2366
Chair: Dr. Laurence Fink, 419.530.2266

Academic Support Services

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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. 322)
- Entrepreneurship and Innovation (p. 342)
- Finance (p. 331)
- Management (p. 345)
- Human Resource Management (p. 343)
- Information Systems (p. 336)
- Marketing (p. 352)
- Operations & Supply Chain Management (p. 338)
- Professional Sales (p. 353)

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. 320)

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. 329)
- AAB-Business Management Technology (p. 329)

transcripted certificate

- Cannabis Management, Certificate (p. 321)
- Consultative Sales, Post Baccalaureate Certificate (p. 356)

Workplace Certificates – Non-Degree Granting Programs (p. 364)

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 additional 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 1000	Orientation For Business Students	1
BUAD 1010	Introduction To Business	3
BUAD 1020	Micro-Computer Applications In Business	3
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 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.

academic advising

Students receive advising concerning their academic program from the professional advisors located in the Academic Advising Center located in Rocket Hall, room 1300. 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 advising@utoledo.edu or call 419-530-4444. Degree audits (DARS) are available in the office and online through Student Self-Service though 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 UToledo.

For purposes of determining the UToledo 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:

UToledo 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)
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.

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 Academic Standards Committee at advising@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 Polices (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%20%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%20%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)

Student Services

Academic Advising

Students receive advising concerning their academic program from the college professional advisors located in Rocket Hall, room 1300. The email is advising@utoledo.edu or phone 419-530-4444. 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. 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
Lower Division Courses		
BUAD 1010	Introduction To Business (Fall Term)	3
BUAD 2040	Financial Accounting Information (Fall Term)	3
Upper Division Courses		
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
Total Hours		**21**

Code	Title	Hours
Upper Division Courses		
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
Total Hours		**15**

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) GlobaLinks 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 Academic Advising at 419.530.4444 or advising@utoledo.edu 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. Pursing 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.

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 ([1]) 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 [1]	3
BUAD 1020	Micro-Computer Applications In Business [1]	3
BUAD 2000	Career Development I	1
BUAD 2020	Information Technology Management [1]	3
BUAD 2030	Executive Communication Essentials [1,2]	3
BUAD 2040	Financial Accounting Information [1]	3
BUAD 2050	Accounting For Business Decision-Making [1]	3
BUAD 2060	Business Statistics [1]	3
BUAD 2070	Business Analytics [1]	3
BUAD 2080	Global Environment Of Business [1]	3
Total Hours		**29**

[1] Students must earn a minimum 2.25 GPA in the subset courses to meet meet graduation requirements.

[2] 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 ([1]) 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 [1]	3
BUAD 3020	Principles Of Manufacturing And Service Systems [1]	3
BUAD 3030	Managerial And Behavioral Processes In Organizations [1]	3
BUAD 3040	Principles Of Financial Management [1]	3
BUAD 3470	The Legal And Ethical Environment Of Business [1]	3
BUAD 4020	Senior Business Policy Forum [1]	3

[1] 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. 322)
- Entrepreneurship and Innovation (p. 342)
- Finance (p. 331)
- Management (p. 345)

- Human Resource Management (p. 343)
- Information Systems (p. 336)
- Marketing (p. 352)
- Operations & Supply Chain Management (p. 338)
- Professional Sales (p. 353)

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
1. General Education/University Core		
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		
2 General Business Focus		
A. Prerequisites		
BUAD 2060	Business Statistics (or statistics equivalent)	3
BUAD 1020	Micro-Computer Applications In Business (or computing equivalent)	3
Select 18 hours [1]		18
B. Required Foundation Course		
BUAD 2040	Financial Accounting Information [2,3]	3
or ACTG 1040	Principles Of Financial Accounting	
C. Additional Requirements		
Select three courses from the following (one must be 3000 level to avoid additional course work):		9
BUAD 1010	Introduction To Business [2]	
BUAD 2020	Information Technology Management [2]	
BUAD 2030	Executive Communication Essentials [2]	
BUAD 2050	Accounting For Business Decision-Making [2,3]	
BUAD 2070	Business Analytics [2,3]	
BUAD 2080	Global Environment Of Business [2]	
BUAD 3010	Principles Of Marketing [2,3]	
BUAD 3020	Principles Of Manufacturing And Service Systems [2,3]	
BUAD 3030	Managerial And Behavioral Processes In Organizations [2]	
BUAD 3040	Principles Of Financial Management [2,3]	
BUAD 3470	The Legal And Ethical Environment Of Business [2]	
Select two additional courses [4]		6
3. Upper Level Courses		
Select 24 hours of upper division courses outside the College of Business and Innovation at UT. [5]		24
4. Additional Courses [6]		
Select 18 hours		18
Total Hours		**120**

1. Eighteen (18) hours are required beyond the prerequisite courses.
2. A grade of C (2.0) or better is required.
3. Prerequisites for an MBA can also be fulfilled by completing this course with a minimum grade of C (2.0).
4. 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.)
5. 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.

[6] 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
Total Hours		**12**

- 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

Chair: Dr. Karen Green

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 (AASCB). This prestigious accreditation places our department among the top 2 percent of accounting departments worldwide!

Degrees Offered

- BBA in Accounting (p. 322)

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) or (ACCT 5310 with a minimum grade of C and ACCT 5110 with a minimum grade of C)
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
Required Courses		
ACCT 3100	Data Analytics in Accounting [1]	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
Total Hours		**21**

[1] 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. 319) 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 [3]	3
Arts/Humanities Core		3
Social Science Core [1]		3
	Hours	**16**
Second Term		
BUAD 1020	Micro-Computer Applications In Business	3
ECON 1150	Principles Of Macroeconomics	3
ENGL 2960	Professional and Business Writing	3
Diversity of US [1]		3
Natural Sciences Core [1]		3
Natural Sciences Laboratory [1]		1
	Hours	**16**
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
	Hours	**16**
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 [1]		3
Natural Science Core [1]		3
	Hours	**15**
Fifth Term		
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 [1]		3
	Hours	**16**
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 [2]		3
	Hours	**15**
Seventh Term		
ACCT 3120	Intermediate Financial 2	3
ACCT 3210	Individual Taxation	3
Minor/Business Elective [2]		3
BUAD 4020	Senior Business Policy Forum	3
Elective		2
	Hours	**14**
Eighth Term		
ACCT 3320	Cost Accounting	3
ACCT 4420	Auditing	3
Minor/Business Elective [2]		3
Elective		3
	Hours	**12**
	Total Hours	**120**

[1] Select from approved University core course work, see degree audit for course selection.

[2] Minor elective or 3000/4000 level Business elective if no Business minor is selected.

[3] 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 competiveness 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

Steve Wallace, Interim 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. 329)
- AAB-Business Management Technology (p. 329)

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 recipts.
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 Develpmnt
[3 credit hours]
Using Dreamveaver 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 [1]		3
	Hours	**16**
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 [1]		3
	Hours	**14**
Third Term		
ACTG 1040	Principles Of Financial Accounting	3
BMGT 2700	Managing Diversity In The Workplace (or US Diversity Core) [1]	3
BUAD 2060	Business Statistics	3
ECON 1200	Principles Of Microeconomics	3
Natural Sciences Core [1]		3
	Hours	**15**
Fourth Term		
ACTG 1050	Principles Of Management Accounting	3
BMGT 2110	Managing In A Global Economy	3
BUAD 2070	Business Analytics	3
Natural Sciences Core [1]		3
Arts/Humanities Core [1]		3
	Hours	**15**
	Total Hours	**60**

[1] Select from approved general education/university core course work, see degree audit for course selection.

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: [1]		3
ECON 1010	Introduction To Economic Issues	
ECON 1150	Principles Of Macroeconomics	
ECON 1200	Principles Of Microeconomics	
	Hours	**16-17**
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 [1]		3
	Hours	**14**
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 [1]		3
	Hours	**15**
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
	Hours	**15**
	Total Hours	**60-61**

[1] Select from approved general education/university core course work, see degree audit for course selection.

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. 331)

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 and AI Applications
[3 credit hours]
This course is a technical introduction to Excel and AI applications for applications in the field of finance. This course begins with a focus on building common financial models, performing scenario and sensitivity analysis, and effective communication of models and analysis in Excel. Models include project models, real estate models, personal financial models, and models for valuing public and private firms and contingent claims. Financial models rely on the analyst to collect and analyze data from various external and internal sources relevant to the context of the model being constructed. To that end, this course also introduces applications of Large Language Models for financial analysts. These applications introduce effective prompting and plan files, integration of LLMs with Excel, working with LLMs in a development environment, and using LLMs to build Python applications for collecting and analyzing and presenting data from public and private financial data warehouses.
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 responsibilites.
Prerequisites: FINA 3480 with a minimum grade of C
Term Offered: Spring, Fall

FINA 4500 Survey of Fintech Topics
[3 credit hours]
This course provides a comprehensive survey of financial technology (FinTech) innovations transforming the global financial system. Students examine the foundations and applications of blockchain technology, cryptocurrencies, artificial intelligence, and machine learning in financial services. The course develops the analytical framework necessary to evaluate emerging financial technologies, assess their strategic implications for traditional financial institutions, and understand the evolving regulatory landscape.
Prerequisites: BUAD 3040 with a minimum grade of C
Term Offered: Spring, Summer, 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
Required Courses		
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 and AI Applications	
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 and AI Applications [1]	
FINA 4100	Security Analysis & Portfolio Management [1]	
FINA 4200	Fixed Income Securities [1]	
FINA 4340	Derivatives Securities and Markets [1]	
FINA 4480	Student Managed Portfolio [2]	
FINA 4670	Advanced Financial Management [1]	
FINA 4900	Seminar In Finance	
FINA 4940	Finance Internship [2]	

[1] If not selected as a required course.
[2] 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. 319) 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 [1]		3
Mathematics Core [5]		3
Arts/Humanities Core [1]		3
	Hours	**16**
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 [1]		3
Natural Sciences Laboratory [1]		1
Diversity of US [1]		3
	Hours	**16**
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
	Hours	**16**
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 [1]		3
Arts/Humanities Core [1]		3
	Hours	**15**
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 [1]		3
	Hours	**16**
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 [2]		3
Minor/Business Elective [2]		3
	Hours	**15**
Seventh Term		
FINA 4080	Intermediate Financial Management	3
FINA Major Elective [3]		3
FINA Major Elective [3]		3
BUAD 4020	Senior Business Policy Forum	3
Elective		2
	Hours	**14**
Eighth Term		
FINA 4670	Advanced Financial Management [4]	3
Elective		3
FINA Major Elective [3]		3
Minor/Business Elective [2]		3
	Hours	**12**
	Total Hours	**120**

[1] Select from approved University core course work, see degree audit for course selection.

[2] Minor elective or 3000/4000 Business elective if no Business minor is selected.

[3] Finance major elective including internship, see degree audit for course selection.

[4] Select FINA 4670 or other approved senior level elective, see degree audit for course selection.

[5] 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

Chair: Dr. Steve Wallace

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. 336)
- BBA Operations & Supply Chain Management (p. 338)

INFS 3150 Fundamentals of Python in Business
[3 credit hours]
Introduction to fundamental constructs of computer programming. This course introduces data types, variables, constants, 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-
Term Offered: Spring, Summer, Fall

INFS 3160 Business Process Automation and Integration
[3 credit hours]
This course aims to give students a broad understanding of technical and business issues in automating processes. Students will gain understanding of the techniques and issues surrounding digital transformation, task automation, workflow automation, system integration, and citizen development.
Prerequisites: BUAD 2020 with a minimum grade of C
Term Offered: 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 Information Security, Data Governance, & Ethics in AI
[3 credit hours]
This course provides students with a comprehensive understanding of technical and business issues in information systems security, including systems security models, analysis of processes and technologies in systems security, and security policies leading to information assurance. The course extends to contemporary challenges in data governance and ethics in artificial intelligence, examining how organizations can secure, govern, and ethically manage data assets in AI-driven environments while maintaining compliance with evolving regulatory frameworks and ethical standards.
Term Offered: Spring, Summer, Fall

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 Discovering Business Insights with Machine Learning
[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, classification, and prediction. Students will learn analytics techniques that are useful in areas such as marketing and forensics accounting.
Prerequisites: BUAD 2070 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

INFS 4300 Machine Learning for Prediction & Classification
[3 credit hours]
This course aims to give students a broad understanding of technical and business issues in data mining and data warehousing. Students will gain understanding of the techniques and issues surrounding data warehousing. In addition, students will learn advanced data mining techniques that are useful in various business functions.
Prerequisites: BUAD 2070 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

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 Obect 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, and PMBOK process groups and knowledge areas.
Prerequisites: BUAD 3020 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

OSCM 4250 Advanced Business Analytics & AI Applications
[3 credit hours]
This course provides a broad understanding of tools, techniques and business issues in using business analytics. It extends data visualization and predictive analysis tools gained in statistics courses. It also introduces decision analysis and develops comprehension of evaluative tools such as spreadsheet modeling. Skills in problem identification and analysis will be developed through the use of cases.
Prerequisites: BUAD 2070 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

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, Fall

OSCM 4760 Sim Mod/Anlys Spply Chn Systm
[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 ine 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
Enterprise Business Systems Requirements		
INFS 3250	Business Data Analysis & Reporting	3
INFS 3150	Fundamentals of Python in Business	3
INFS 3770	Introduction To Database Systems	3
INFS 3160	Business Process Automation and Integration	3
INFS 4510	Business Systems Analysis and Design	3
OSCM 4210	Project Management (Electives)	3
Select one of the following Enterprise Business Systems Electives		3
INFS 3370	Business Data Communications	
INFS 3400	Information Security, Data Governance, & Ethics in AI	
INFS 3780	Enterprise Wide Information Systems Management	
INFS 3980	Contemporary Topics	
INFS 4100	Discovering Business Insights with Machine Learning	
INFS 4680	Enterprise Systems Implementation and Integration	
INFS 4940	Info Systems Internship	
Total Hours		**21**

Code	Title	Hours
Business Analytics Requirements		
INFS 3250	Business Data Analysis & Reporting	3
INFS 3150	Fundamentals of Python in Business	3
INFS 3770	Introduction To Database Systems	3
INFS 4100	Discovering Business Insights with Machine Learning	3
ACCT 3100	Data Analytics in Accounting	3
Select two of the following Business Analytics Electives		6
INFS 3160	Business Process Automation and Integration	
INFS 3400	Information Security, Data Governance, & Ethics in AI	
INFS 4680	Enterprise Systems Implementation and Integration	
INFS 4940	Info Systems Internship	
OSCM 4250	Advanced Business Analytics & AI Applications	
Total Hours		**21**

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. 319)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 [4]	3
Arts/Humanities Core [1]		3
Social Science Core [1]		3
	Hours	**16**
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 [1]		3
Natural Sciences Core [1]		3
Natural Sciences Laboratory [1]		1
	Hours	**16**
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
	Hours	**16**
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 [1]		3
Natural Science Core [1]		3
	Hours	**15**
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
INFS 3150	Fundamentals of Python in Business	3
Non-US Diversity [1]		3
	Hours	**16**
Sixth Term		
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 [2]		3
	Hours	**15**
Seventh Term		
BUAD 4020	Senior Business Policy Forum	3
INFS 4510 or INFS 4100		3
INFS 4940 Internship or INFS Elective [3]		3

Minor or 3000/4000 level Business [2]	3
Elective	2
Hours	**14**
Eighth Term	
INFS 3160 or INFS Major Electrive [3]	3
OSCM 4210 or ACCT 3100	3
Minor/Business Elective [2]	3
Elective	3
Hours	**12**
Total Hours	**120**

1 Select from approved University core course work, see degree audit for course selection.
2 Minor elective or 3000/4000 level Business elective if no Business minor is selected.
3 INFS major elective including internship, see degree audit for course selection.
4 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
Operations & Supply Chain Management Required Courses		
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
Elective Courses		
Select three of the following:		9
MKTG 3130	Supply Chain Management	
MKTG 4220	International Sourcing, Logistics And Transportation	
OSCM 4250	Advanced Business Analytics & AI Applications	
OSCM 4420		
OSCM 4760	Sim Mod/Anlys Spply 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	
Total Hours		**21**

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. 319) 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 [4]	3
Social Science Core [1]		3
Arts/Humanities Core [1]		3
	Hours	**16**
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 [1]		3
Natural Sciences Core [1]		3
Natural Sciences Laboratory [1]		1
	Hours	**16**
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
	Hours	**16**
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 [1]		3
Natural Science Core [1]		3
	Hours	**15**
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 [1]		3
	Hours	**16**
Sixth Term		
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 [3]		3
Minor/Business Elective [2]		3
	Hours	**15**
Seventh Term		
BUAD 4020	Senior Business Policy Forum	3
OSCM 3610	Operations Planning and Scheduling	3
Minor/Business Elective [2]		3
OSCM Major Elective [3]		3
Elective		2
	Hours	**14**
Eighth Term		
OSCM 4500	Supply Chain Strategy	3
OSCM Major Elective [3]		3
Minor/Business Elective [2]		3

Elective	3
Hours	**12**
Total Hours	**120**

1 Select from approved University core course work, see degree audit for course selection.
2 Minor elective or 3000/4000 level Business elective if no Business minor is selected.
3 OSCM major elective including internship, see degree audit for course selection.
4 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 Management

Chair: Dr. Laurence Fink

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. 342)
- BBA Human Resource Management (p. 343)
- BBA Management (p. 345)

EFSB 2500 Introduction To Entrepreneurship for Non-Business Students
[3 credit hours]
Course is an introductory course about entrepreneurship designed specifically for all majors to provide a broad and interesting overview of the issues and opportunities involved in starting a new business It focuses on the entrepreneurial environment, opportunity recognition, and the development of an entrepreneurial mindset.
Term Offered: Fall

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.
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 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
Required Courses		
BUAD 1000	Orientation For Business Students	1
BUAD 1010	Introduction To Business	3
BUAD 1020	Micro-Computer Applications In Business	3
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 2050	Accounting For Business Decision-Making	3
BUAD 2060	Business Statistics	3
BUAD 2070	Business Analytics	3
BUAD 2080	Global Environment Of Business	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
BUAD 3040	Principles Of Financial Management	3
BUAD 3470	The Legal And Ethical Environment Of Business	3
BUAD 4020	Senior Business Policy Forum	3
BLAW 3570	The Laws Of Structuring And Operating A Business	3
ECON 1150	Principles Of Macroeconomics	3
ECON 1200	Principles Of Microeconomics	3
EFSB 2500	Introduction To Entrepreneurship for Non-Business Students	3
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
EFSB 4940	Internship In Entrepreneurship And Family 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		

Below is a sample plan of study. Please see pre-business/lower division requirements BBA plan (p. 319) 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 [3]	3
Arts/Humanities Core [1]		3
Social Science Core [1]		3
	Hours	**16**
Second Term		
BUAD 1020	Micro-Computer Applications In Business	3
ENGL 2960	Professional and Business Writing	3

ECON 1150	Principles Of Macroeconomics	3
EFSB 2500	Introduction To Entrepreneurship for Non-Business Students	3
Natural Sciences Core [1]		3
Natural Sciences Laboratory [1]		1
	Hours	**16**
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
	Hours	**16**
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 [1]		3
Natural Science Core [1]		3
	Hours	**15**
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 [1]		3
	Hours	**16**
Sixth Term		
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 [2]		3
Minor/Business Elective [2]		3
	Hours	**15**
Seventh Term		
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
	Hours	**14**
Eighth Term		
EFSB 4010	Growing Family And Entrepreneurial Businesses	3
PSLS 3440	Professional Sales	3
Diversity of US		3
Elective		3
	Hours	**12**
	Total Hours	**120**

1. Select from approved University course work, see degree audit for course selection.
2. Minor elective or 3000/4000 Business elective if no Business minor is selected.
3. 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 competiveness 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
Required Courses		
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
Total Hours		**21**

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. 319) 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 [3]	3
Arts/Humanities Core [1]		3
Social Science Core [1]		3
	Hours	**16**
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 [1]		3
Natural Sciences Core [1]		3
Natural Sciences Laboratory [1]		1
	Hours	**16**
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
	Hours	**16**
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 [1]		3
Arts/Humanities Core [1]		3
	Hours	**15**
Fifth Term		
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 [1]		3
	Hours	**16**
Sixth Term		
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 [2]		3
Minor/Business Elective [2]		3
	Hours	**15**
Seventh Term		
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
	Hours	**14**
Eighth Term		
HURM 4650	Compensation	3
MGMT 3630	Conflict Management: Mediation & Negotiations	3
Minor/Business Elective [2]		3
Elective		3
	Hours	**12**
	Total Hours	**120**

1. Select from approved University core course work, see degree audit for course selection.
2. Minor elective or 3000/4000 level Business elective if no Business minor is selected.
3. 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.

- BBA in Management (p. 345)
- BBA in Management - Sports Management Concentration (p. 346)

BBA in Management

Code	Title	Hours
Required Departmental Courses		
Select four of the following: [1]		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 [2]	
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 [2]	
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 [2]	
Electives		
Select three Business elective courses [3]		9
Total Hours		**21**

1. Select four courses with a maximum two courses from each alpha code.
2. With departmental approval.
3. 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.

BBA in Management - Sports Management Concentration

Code	Title	Hours
Required Courses:		
BUAD 1000	Orientation For Business Students	1
Select four of the following: [1]		
BLAW 3550	Legal And Safety Compliance Issues In Human Resource Management	
BLAW 3570	The Laws Of Structuring And Operating A Business	
BLAW 4570	Legal And Ethical Aspects Of Managing Innovation And Technology	
BLAW 4580	Detection And Prevention Of Deceptive Business Practices	
EFSB 3480	Entrepreneurial Finance	
EFSB 4010	Growing Family And Entrepreneurial Businesses	
EFSB 4590	Entrepreneurship and Small Business Management	
EFSB 4690	Strategic Management of Innovation	
EFSB 4940	Internship In Entrepreneurship And Family Business [2]	
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 [2]	
MGMT 4330	Leading Organizational Change and Development	
MGMT 4780	Leading and Managing People	
MGMT 4900	Seminar On Contemporary Issues In Management	
Electives		
Select three Business elective courses [3]		9
Sports Management Required Courses		
Select one of the following two courses:		
COMM 3260	Live Sports Production	3
or PSC 3850	Sports, Politics and Policy	
Select one of the following two courses:		
COMM 4270	Special Event Planning	3
or EXSC 4210	Exercise Facility Management	
PSLS 3440	Professional Sales	3
MKTG 3920	Sports Marketing	3
Select one of the following two courses:		
MGMT 4880	Sports Leadership	3

or MGMT 4780	Leading and Managing People	
MGMT 4940	Management Internship	3

1 Select four courses with a maximum two courses from each alpha code.
2 With departmental approval.
3 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. 319)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.

BBA in Management (p. 345)
BBA in Management - Sports Management Concentration (p. 348)

BBA in Management

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 [5]	3
Arts/Humanities Core [1]		3
Social Science Core [1]		3
	Hours	**16**
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 [1]		3
Natural Sciences Core [1]		3
Natural Sciences Laboratory [1]		1
	Hours	**16**
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
	Hours	**16**
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 [1]		3
Natural Science Core [1]		3
	Hours	**15**
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 [1]		3
	Hours	**16**
Sixth Term		
BUAD 3020	Principles Of Manufacturing And Service Systems	3
Minor/Business Elective [2]		3
MGMT Major Elective [3]		3
MGMT Major Elective [3]		3
MGMT Major Elective - General Business [4]		3
	Hours	**15**
Seventh Term		
BUAD 4020	Senior Business Policy Forum	3
MGMT Major Elective [3]		3
MGMT Major Elective - General Business [4]		3
Minor/Business Elective [2]		3
Elective		2
	Hours	**14**
Eighth Term		
MGMT Major Elective [3]		3
MGMT Major Elective - General Business [4]		3
Minor/Business Elective [2]		3
Elective		3
	Hours	**12**
	Total Hours	**120**

[1] Select from approved University core course work, see degree audit for course selection.

[2] Minor elective or 3000/4000 level Business elective if no Business minor is selected.

[3] Management major elective, including internship, see degree audit for course selection.

[4] Management major elective outside of the Management Department, see degree audit for course selection.

[5] Acceptable replacements include MATH 1260 or 1270 or 1340 or 1730 or 1750 or 1760 or 1850 or 1860 or 2450 or 2460

BBA in Management - Sports Management Concentration

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 [5]	3
Arts/Humanities Core [1]		3
Social Science Core [1]		3
	Hours	**16**
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 [1]		3
Natural Sciences Core [1]		3
Natural Sciences Laboratory [1]		1
	Hours	**16**
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
	Hours	**16**
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 [1]		3
Natural Science Core [1]		3
	Hours	**15**
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 [1]		3
	Hours	**16**

Sixth Term		
BUAD 3020	Principles Of Manufacturing And Service Systems	3
Minor/Business Elective [2]		3
MGMT Major Elective [3]		3
MGMT Major Elective [3]		3
MGMT Major Elective - General Business [4]		3
	Hours	**15**
Seventh Term		
BUAD 4020	Senior Business Policy Forum	3
SPORTS MGMT Concentration Elective		3
SPORTS MGMT Concentration Elective		3
SPORTS MGMT Concentration Elective		3
Elective		2
	Hours	**14**
Eighth Term		
SPORTS MGMT Concentration Elective		3
SPORTS MGMT Concentration Elective		3
SPORTS MGMT Concentration Elective		3
Business Elective [2]		3
	Hours	**12**
	Total Hours	**120**

1 Select from approved University core course work, see degree audit for course selection.
2 Minor elective or 3000/4000 level Business elective if no Business minor is selected.
3 Management major elective, including internship, see degree audit for course selection.
4 Management major elective outside of the Management Department, see degree audit for course selection.
5 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. 352)
- BBA Professional Sales (p. 353)
- Consultative Sales, Post Baccalaureate Certificate (p. 356)

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 envrioment.
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
Required Courses		
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
Electives		
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. 319) 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 [4]	3
Arts/Humanities Core [1]		3
Social Science Core [1]		3
	Hours	**16**
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		3
Natural Sciences Core [1]		3
Natural Sciences Laboratory [1]		1
	Hours	**16**
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
	Hours	**16**
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 [1]		3
Natural Science Core [1]		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 [1]		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 [3]		3
Minor/Business Elective [2]		3
	Hours	**15**
Seventh Term		
BUAD 4020	Senior Business Policy Forum	3
MKTG 3280 Digital Marketing [3]		3
MKTG Major Elective [3]		3
Minor/Business Elective [2]		3
Elective		2
	Hours	**14**
Eighth Term		
MKTG 4130	Marketing Analysis And Decision Making	3
MKTG Major Elective [3]		3
Minor/Business Elective [2]		3
Elective		3
	Hours	**12**
	Total Hours	**120**

1. Select from approved University core course work, see degree audit for course selection.
2. Minor elective or 3000/4000 level Business elective if no Business minor is selected.
3. Marketing major elective including internship, see degree audit for course selection.
4. 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 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
Required Professional Sales Courses		
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
MKTG 4540	Business Marketing [1]	3
or PSLS 4500	International Sales Negotiation	
PSLS 4940	Integrative Capstone: Sales Internship	3
Recommended Courses towards General Education/University Core Requirements		
COMM 1010	Communication Principles And Practices	
PHIL 1020	Critical Thinking	
PSY 1010	Principles Of Psychology	
SOC 1010	Introduction To Sociology	
Total Hours		**21**

[1] 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.

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. 319)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 [3]	3
Arts/Humanities Core [1]		3
Social Science Core [1]		3
	Hours	**16**
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 [1]		3
Natural Sciences Core [1]		3
Natural Sciences Laboratory [1]		1
	Hours	**16**
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
	Hours	**16**
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 [1]		3
Natural Science Core [1]		3
	Hours	**15**
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 [1]		3
	Hours	**16**
Sixth Term		
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 [2]		3
	Hours	**15**
Seventh Term		
BUAD 4020	Senior Business Policy Forum	3
PSLS 4710	Salesforce Leadership	3
PSLS 4940	Integrative Capstone: Sales Internship	3
Minor/Business Elective [2]		3
Elective		2
	Hours	**14**
Eighth Term		
MKTG 4540	Business Marketing	3
PSLS 4740	Advanced Sales	3
Minor/Business Elective [2]		3
Elective		3
	Hours	**12**
	Total Hours	**120**

[1] Select from approved University core course work, see degree audit for course selection.

[2] Minor elective or 3000/4000 level Business elective if no Business minor is selected.

[3] 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
Required		
PSLS 3440	Professional Sales	3
PSLS 3450	Sales Technologies and Strategies	3
PSLS 3080	Purchasing And Business Relationship Management	3
Electives		
Select two of the following:		6
PSLS 4710	Salesforce Leadership	
or BUAD 3010	Principles Of Marketing	
or MKTG 4540	Business Marketing	
Total Hours		**15**

- 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. 360).

Degrees Offered

- Accounting Minor (p. 356)
- Business Law Minor (p. 356)
- Digital Marketing Minor (p. 357)
- Entrepreneurship, Family, & Small Business Minor (p. 357)
- Finance Minor (p. 357)
- Financial Data Analytics Minor (p. 357)
- Information Systems Minor (p. 357)
- International Business Minor (p. 358)
- Leadership Minor (p. 358)
- Management Minor (p. 358)
- Marketing Minor (p. 358)
- Professional Sales Minor (p. 359)
- Operations and Supply Chain Management Minor (p. 359)
- Sustainability Minor (p. 359)

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 Law Minor

Code	Title	Hours
Required Courses		
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 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
Total Hours		**12**

Digital Marketing Minor

Code	Title	Hours
Required Courses:		
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.
- 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.

Entrepreneurship, Family, & Small Business Minor

Code	Title	Hours
Required Courses		
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
Total Hours		**12**

Finance Minor

Code	Title	Hours
Required Courses		
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
Total Hours		**12**

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 and AI Applications (Required)	3
OSCM 4250	Advanced Business Analytics & AI Applications (Required)	3
Elective - Choose one of the following:		3
INFS 3150	Fundamentals of Python in Business	
INFS 3400	Information Security, Data Governance, & Ethics in AI	
INFS 4100	Discovering Business Insights with Machine Learning	
Required Business Core BUAD course will serve as the fourth course to meet minor requirements.		3
Total Hours		**12**

Information Systems Minor

Code	Title	Hours
Required Course		
Select one of the following:		3
INFS 3250	Business Data Analysis & Reporting	
INFS 3150	Fundamentals of Python in Business	
Electives		
Select two of the following:		6
INFS 3150	Fundamentals of Python in Business	

INFS 3250	Business Data Analysis & Reporting	
INFS 3370	Business Data Communications	
INFS 3400	Information Security, Data Governance, & Ethics in AI	
INFS 3770	Introduction To Database Systems	
INFS 3780	Enterprise Wide Information Systems Management	
INFS 3980	Contemporary Topics	
INFS 4100	Discovering Business Insights with Machine Learning	
INFS 4300	Machine Learning for Prediction & Classification	
INFS 4320		
INFS 4620	Enterprise Database Systems	
Required Business Core BUAD course will serve as the fourth course to meet minor requirements.		3
Total Hours		**12**

International Business Minor

Code	Title	Hours
Select three of the following, taking into consideration any prerequisites:		9
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
Total Hours		**12**

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	

- PLO 1. Students will gain insight into the role of the leader in creating and sustaining strong organizational culture.
- 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
Required Courses		
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	
Total Hours		**12**

- 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
Required		
Select one of the following:		*3*
MKTG 3850	Buyer Behavior And Relationship Marketing	
or MKTG 3690	Marketing Communications	
Electives		
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	
Required Business Core BUAD course will serve as the fourth course to meet minor requirements		**3**
BUAD 3010	Principles Of Marketing	
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.
- 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
Prerequisite		
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	Advanced Business Analytics & AI Applications	
OSCM 4760	Sim Mod/Anlys Spply Chn Systm	
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
Total Hours		**12**

Professional Sales Minor

Code	Title	Hours
Required		
PSLS 3440	Professional Sales	3
Electives		
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
Total Hours		**12**

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 Judith Herb College of Arts, Social Sciences, and Education. 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.

Code	Title	Hours
Program Requirements - 5 Courses - 15 hours		
Required - 3 Courses - 9 hours	*Any courses in this list not taken as a Required Course may be taken as an Elective Course.*	*9*
GNEN 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	
Electives - 2 Courses - 6 hours - Select two from:		*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
Total Hours	**15**

Code	Title	Hours
SOCIAL SCIENCE FOCUS – SUGGESTED ELECTIVE COURSES		
EEES 4850	Dimensions of Sustainability	
ECON 3240	Environmental Economics	
ECON 3260		
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
STEM FOCUS – SUGGESTED ELECTIVE COURSES		
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. 360)
- Digital Marketing Minor for Non-Business Students (p. 361)
- Entrepreneurship, Family, and Small Business Minor for Non-Business Students (p. 361)
- General Minor for Non-Business Students (p. 361)
- International Business Minor for Non-Business Students (p. 362)
- Marketing for Non-Business Students (p. 363)
- Operations Management/Supply Chain Management for Non-Business Students (p. 363)
- Professional Sales Minor for Non-Business Students (p. 363)
- Sustainability Minor (p. 359)

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
Required Course		
ACCT 3100	Data Analytics in Accounting [1]	3
Electives		
Select four of the following:		12
ACCT 3110	Intermediate Financial 1 [2]	
ACCT 3310	Accounting Information Systems And Controls [2]	
ACCT 3210	Individual Taxation [2]	
ACCT 3320	Cost Accounting [2]	
ACCT 3120	Intermediate Financial 2 [3]	

FINA 4080	Intermediate Financial Management [4]	
Total Hours		**15**

1 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).
2 Prerequisite: ACCT 3100 with a grade of C (2.0) or better.
3 Prerequisite: ACCT 3110 with a grade of C (2.0) or better.
4 Prerequisite: BUAD 3040 with a grade of C (2.0) or better.

Digital Marketing for Non-Business Students

Code	Title	Hours
Required Course in Economics		
Select on of the following:		*3*
ECON 1200	Principles Of Microeconomics	
MIME 2600	Engineering Economics	
Required Business Classes:		**12**
BUAD 3010	Principles Of Marketing	
MKTG 3280	Digital Marketing	
MKTG 3380	Digital Content Development	
MKTG 3480	Digital Marketing Tools and Analytics	
Total Hours		**15**

- 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.

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
Required Business Courses		
EFSB 2500	Introduction To Entrepreneurship for Non-Business Students	3
EFSB 3480	Entrepreneurial Finance	3
EFSB 4590	Entrepreneurship and Small Business Management	3
EFSB 4010	Growing Family And Entrepreneurial Businesses	3
Business Elective		
Select one of the following:		3
BUAD 3010	Principles Of Marketing	
EFSB 4690	Strategic Management of Innovation	
BUAD 2040	Financial Accounting Information	
or ACTG 104	Principles Of Financial Accounting	
Total Hours		**15**

General Minor for Non-Business Students

Code	Title	Hours
Required Prerequisite Courses [1]		
Economics		
Select one of the following:		
ECON 1150 & ECON 1200	Principles Of Macroeconomics and Principles Of Microeconomics [2]	
MIME 2600	Engineering Economics (or equivalent)	
Mathematics		
Select from any UT CORE Math course except statistics		
Computing		
Select one of the following:		
BUAD 1020	Micro-Computer Applications In Business	
CMPT 1100	Microsoft Office Applications	
or approved equivalent		
Business Statistics		
Select one of the following:		
BUAD 2060	Business Statistics [2]	
MATH 2600	Introduction To Statistics	
or equivalent		
Required Foundation Course [3]		
BUAD 2040	Financial Accounting Information [2]	3
or ACTG 1040	Principles Of Financial Accounting	
Additional Requirements [3,4]		

Select 3 courses from the following with at least one course at 3000 level to avoid additional coursework: [5]		9
BUAD 1010	Introduction To Business	
or BMGT 1010	Business Principles	
BUAD 2050	Accounting For Business Decision-Making [2]	
or ACTG 1050	Principles Of Management Accounting	
BUAD 2070	Business Analytics [2]	
BUAD 2080	Global Environment Of Business	
or BMGT 2110	Managing In A Global Economy	
BUAD 3010	Principles Of Marketing [2]	
or MARS 1010	Marketing Principles	
BUAD 3020	Principles Of Manufacturing And Service Systems [2]	
BUAD 3030	Managerial And Behavioral Processes In Organizations	
BUAD 3040	Principles Of Financial Management [2]	
BUAD 3470	The Legal And Ethical Environment Of Business	
or BMGT 2310	Legal Environment Of Business	
BUAD 2020	Information Technology Management	
Select two additional 3000/4000 level Business courses [6]		6
Total Hours		**18**

1. 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.
2. Prerequisites for an MBA can also be fulfilled by completing the indicated courses with a minimum grade of C (2.0).
3. 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.
4. At least three of the five courses selected to fulfill the additional minor in business requirements must be at the 3000 or 4000 level.
5. Approved associate degree equivalents courses are shown as the second course. (Prerequisites for selected courses must be fulfilled.)
6. 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.)

- Innovation and Creativity -- Each student can think critically to identify problems, research, analyze, and make sound inferences from and use effective problem solving and decision-making techniques.
- Business Acumen--Each student can identify, interpret, evaluate, and suggest solutions within the legal, global, financial, marketing, and operational dimensions of business.
- Leadership -- Each student can practice reflective thinking to assess personal strengths and challenges and can formulate strategies for lifetime development of leadership.

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
Required Course in Economics		
Select one of the following: [1]		
ECON 1150 & ECON 1200	Principles Of Macroeconomics and Principles Of Microeconomics	
MIME 2600	Engineering Economics (or equivalent)	
Required Business Courses		
BUAD 2080	Global Environment Of Business (Prerequisite: Sophomore standing)	3
Select two of the following:		6
BUAD 3010	Principles Of Marketing [2]	
BUAD 3030	Managerial And Behavioral Processes In Organizations (Prerequisite: Junior standing)	
BUAD 3040	Principles Of Financial Management [3]	
International Business Electives		
Select at least two of the following:		6
IBUS 3600	International Management (Prerequisite: Junior standing) [4]	
MKTG 3140	International Marketing [5]	
FINA 3500	International Business Finance [6]	
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 [7]	
IBUS 4180	(Prerequisite: Junior standing)	
MKTG 3260	(Prerequisite: Junior standing)	
MKTG 4220	International Sourcing, Logistics And Transportation [8]	
BLAW 3670	[4]	
Total Hours		**18**

1. These are not business course hours and do not count toward the 18 hours of business courses required in the program.
2. Prerequisites: ECON 1200 Or MIME 2600, Junior standing.
3. Prerequisite: BUAD 2040 Financial Accounting Information.
4. Prerequisite: BUAD 3030.
5. Prerequisite: BUAD 3010.
6. Prerequisite: BUAD 3040.
7. Subject to approval of departmental chair or IB faculty adviser. Prerequisite: Permission of Chair and Faculty.
8. 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
Required Course: Economics Pre-requisite		
ECON 1200	Principles Of Microeconomics	3
or MIME 2600	Engineering Economics	
Required Marketing Courses		
BUAD 3010	Principles Of Marketing	3
MKTG 3850	Buyer Behavior And Relationship Marketing	3
Marketing Electives		
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	
Total Hours		**18**

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:		15
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	
Total Hours		**15**

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
Required Business Courses		
PSLS 3440	Professional Sales	3
PSLS 3450	Sales Technologies and Strategies	3
PSLS 4740	Advanced Sales	3
Business Elective		
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**

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 Judith Herb College of Arts, Social Sciences, and Education. 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.

Code	Title	Hours
Program Requirements - 5 Courses - 15 hours		
Required - 3 Courses - 9 hours	*Any courses in this list not taken as a Required Course may be taken as an Elective Course.*	*9*
GNEN 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	
Electives - 2 Courses - 6 hours - Select two from:		*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	
Total Hours		**15**

Code	Title	Hours
SOCIAL SCIENCE FOCUS – SUGGESTED ELECTIVE COURSES		
EEES 4850	Dimensions of Sustainability	
ECON 3240	Environmental Economics	
ECON 3260		
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
STEM FOCUS – SUGGESTED ELECTIVE COURSES		
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.

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. 364)
- Computer Network Administration Workplace Certificate (p. 364)
- Computer Software Specialist Workplace Certificate (p. 364)
- Consultative Sales (Post Baccalaureate) Workplace Certificate (p. 365)
- Digital Marketing (Post Baccalaureate) Workplace Certificate (p. 365)
- Information Services and Support Workplace Certificate (p. 365)
- Programming and Software Development Workplace Certificate (p. 365)
- Web Design Workplace Certificate (p. 365)

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
Total Hours		**15**

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
Total Hours		**17**

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
Total Hours		**11**

Consultative Sales (Post Baccalaureate) Workplace Certificate

Code	Title	Hours
Required		
PSLS 3440	Professional Sales	3
PSLS 3450	Sales Technologies and Strategies	3
PSLS 3080	Purchasing And Business Relationship Management	3
Electives		
Select two of the following:		6
BUAD 3010	Principles Of Marketing [1]	
PSLS 4710	Salesforce Leadership	
PSLS 4500	International Sales Negotiation	
MKTG 4540	Business Marketing	
Total Hours		**15**

[1] Required if student has not taken Marketing Principles.

Digital Marketing (Post Baccalaureate) Workplace Certificate

Code	Title	Hours
Required		
MKTG 3280	Digital Marketing	3
MKTG 3380	Digital Content Development	3
MKTG 3480	Digital Marketing Tools and Analytics	3
Electives		
Select two of the following:		6
BUAD 3010	Principles Of Marketing [1]	
MKTG 3690	Marketing Communications	
MKTG 3850	Buyer Behavior And Relationship Marketing	
MKTG 3880	Marketing Research And Data Analytics	
MKTG 4980	Special Topics	
Total Hours		**15**

[1] 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
Total Hours		**15**

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
Total Hours		**15**

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 Develpmnt	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
Total Hours		**16**

Faculty

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Judith Herb College of Arts, Social Sciences and Education

Undergraduate Catalog 2026-2027

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mission

The Judith Herb College of Arts, Social Sciences, and Education leads liberal arts education and research programs at the University of Toledo. Through our programs in the arts, humanities, social sciences, and education we prepare students to excel as creative, ethical, collaborative, and global citizens.

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Accreditation Agencies

- Council for Accreditation of Educator Preparation (CAEP)
- American Bar Association (ABA)
- American Psychological Association (APA)
- Commission on Accreditation National Association of Schools of Art and Design (NASAD)
- National Association of Schools of Music (NASM)
- National Association of Schools of Theatre (NAST)

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Degrees Offered

- Department of Art (p. 388)
  - B.A. in Visual Art (p. 395)
  - B.F.A. in Studio Art (p. 397)
  - Arts Management and Entrepreneurship Certificate (https://catalog.utoledo.edu/undergraduate/arts-social-sciences-education/art/arts-management-and-entrepreneurship-certificate/)
  - Art Museum Practices Certificate (https://catalog.utoledo.edu/undergraduate/arts-social-sciences-education/art/art-museum-practices-certificate/)
  - Graphic Design Certificate (p. 405)
  - Photography Certificate (p. 405)
  - Minor in Art History (p. 405)
  - Minor in Art Museum Practices (https://catalog.utoledo.edu/undergraduate/arts-social-sciences-education/art/minor-art-history/minor-art-museum-practices/)
  - Minor in Community Arts Education (p. 405)
  - Minor in Graphic Design (p. 406)
  - Minor in Studio Art (p. 406)
- Department of Communication (p. 406)
  - B.A. in Communication (p. 411)
  - General Communication Minor (p. 417)
  - Audio Production Communication Certificate (p. 417)
  - Health Communication Certificate (p. 418)
  - Journalism Communication Certificate (p. 418)
  - Media Production Communication Certificate (p. 418)
  - Organizational Communication Certificate (p. 418)
  - Public Relations Communication Certificate (p. 419)
  - Social Media Communication Certificate (p. 419)
- Criminal Justice Program (p. 419)
  - BS in Criminal Justice (p. 421)
  - Minor in Criminal Justice (p. 422)
  - Minor in Forensic Science Investigation (p. 423)
- Department of Economics (p. 423)
  - B.A. in Economics (p. 427)
  - Minor in Economics (p. 433)
  - Minor in Environmental Economics (p. 433)
  - Minor in Public Economics (p. 433)
  - Advanced Economics Certificate (p. 431)
  - Advanced Quantitative Economics Certificate (p. 432)
  - Environmental Economics Certificate (p. 432)
  - Public Economics Certificate (p. 432)
- Department of English Language and Literature (p. 436)
  - B.A. in English (p. 442)
  - Minor in English (p. 445)
- Department of Geography and Planning (p. 445)
  - B.A. in Geography and Planning (p. 449)
  - B.S. in Geospatial Science (p. 455)
  - Geographic Information Science and Technology Certificate (p. 456)
  - Urban and Regional Planning Certificate (p. 456)
  - Minor in Geographic Information Science and Technology (p. 456)
  - Minor in Human and Environmental Geography (p. 457)
  - Minor in Urban and Regional Planning (p. 457)
- Department of History (p. 457)
  - B.A. in History (p. 462)
  - Minor in History (p. 463)
  - Minor in Holocaust and Genocide Studies (p. 463)
- Legal and Paralegal Studies Program (p. 464)
  - Associate of Applied Science in Legal and Paralegal Studies (p. 466)
  - BS in Legal and Paralegal Studies (p. 467)
  - Certificate in Nurse Paralegal (p. 468)
  - Minor in Legal Specialties (p. 469)
  - Post Baccalaureate Certificate in Legal and Paralegal Studies (p. 469)
- Department of Music (p. 470)
  - Bachelor of Education in Music (p. 476)
  - Instrumental Minor (p. 476)
  - Jazz Minor (p. 477)
  - Keyboard Minor (p. 477)
  - Music History and Literature Minor (p. 478)
  - Music Technology Minor (p. 478)
  - Music Theory Minor (p. 479)
  - Vocal Minor (p. 479)
- Department of Philosophy and Religious Studies (p. 479)
  - Minor in Philosophy (p. 485)
  - Minor in Religious Studies (p. 485)
  - Data and Technology Ethics Certificate (p. 484)
  - Environmental Ethics Certificate (p. 484)
- Department of Political Science (p. 485)
  - B.A. in Political Science (p. 491)
  - Minor in Political Science (p. 494)
  - Minor in Public Administration
- Department of Psychology (p. 494)
  - B.A. in Psychology (p. 498)
  - Minor in Psychology (p. 501)
- Department of Sociology and Anthropology (p. 501)
  - B.A. in Anthropology (p. 506)
  - Minor in Africana Studies (p. 512)
  - Minor in Anthropology (p. 512)
  - Minor in Disability Studies (p. 512)
  - Minor in Sociology (p. 513)
- Department of Theatre and Film (p. 554)
  - B.A. in Film/Video (p. 559)
  - B.A. in Theatre (p. 561)

- Minor in Cinema Studies (p. 565)
- Minor in Film/Video (p. 566)
- Minor in Stage and Screen Performance (p. 566)
- Minor in Theatre Arts (p. 566)
- Minor in Theatre Design and Technology (p. 567)
- Post-production for Film and Video Certificate (https://catalog.utoledo.edu/undergraduate/arts-social-sciences-education/theatre-film/post-production-film-video-certificate/)

- Department of Women's and Gender Studie (p. 567)s
  - Minor in (p. 570)Gender Identities and Sexuality Studies
  - Minor in Women's and Gender Studies (p. 571)
- Department of World Languages and Cultures (p. 571)
  - Minor in Applied German (p. 581)
  - Minor in Arabic (p. 582)
  - Minor in General German (p. 582)
  - Minor in Japanese (p. 583)
  - Minor in Language and Linguistics (p. 584)
  - Minor in Spanish (p. 584)
  - Minor in World Cultures (p. 585)
  - Certificate in Intercultural Competency (p. 580)
  - Certificate in Issues in Second Language Teaching (p. 581)
  - Certificate in Spanish Translation and Interpretation (p. 581)
  - Certificate in World Language Proficiency (p. 581)

Interdisciplinary Programs (p. 586)

- A.A. in Liberal Arts (p. 591)
- Asian Studies Program (p. 593)
  - Minor in Asian Studies (p. 593)
- Data Analytics Program (p. 594)
  - B.A. in Data Analytics (p. 594)
  - Minor in Data Analytics (p. 595)
- B.A. General Studies (p. 596)
- Law and Social Thought Program (p. 601)
  - B.A. in Law and Social Thought (p. 603)
  - Minor in Law and Social Thought (p. 607)
- Middle East Studies Program (p. 607)
  - Middle East Studies Minor (p. 607)
- Health Humanities Minor (p. 599)
- Interdisciplinary Minors (p. 599)
  - Minor in Digital Arts and Visual Communication (p. 599)
  - Minor in Documentary Production and Practice (p. 600)
  - Minor in Sound Production and Design (p. 600)
  - Minor in Visual Effects and Animation (p. 600)
- Pre-Law (p. 608)

accreditation

The Education programs in the Judith Herb College of Arts, Social Sciences, and Education are 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.

Education Bachelor Degrees

Bachelor of Education in Adolescent and Young Adult Education (p. 523)

- 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. 539)

- 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. 542)

- 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 Music (p. 547)

- Initial educator preparation for an Ohio educator license in Multi-age Education (ages 3-21/grades PreK-12) in Music.

Bachelor of Fine Art with concentration in Art Education (p. 397)

- Initial educator preparation for an Ohio educator license in Art.

Bachelor of Education in Special Education (p. 544)

- 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 (p. 551)

- 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. 436)

- Experiential learning program providing educational development and recreational programming for the United States Army's children and youth in Europe

- Certificate in Career & Technical Preparation (9CH) (p. 553)

Minors in Education

Peace Studies (p. 436)

- This interdisciplinary academic minor is open to students in all degree programs

Admission Policies

On this page you will find admission policies apply to the degree-granting programs listed below. *(Select the related tabs for Education, the Department of Legal and Paralegal Studies, and the Department of Criminal Justice to see admission policies for those areas.)*:

- Department of Art (B.A. and B.F.A.)
- Department of Communication and Media (B.A.)
- Department of Economics (B.A.)
- Department of English Language and Literature (B.A.)
- Department of Geography and Planning (B.A.)
- Department of History (B.A.)
- Department of Music (B.M.)
- Department of Political Science (B.A.)
- Department of Psychology (B.A.)
- Department of Sociology and Anthropology (B.A. in Sociology; B.A. in Anthropology)
- Department of Theatre and Film (B.A. in Theatre; B.A. in Film)
- B.A. in Law and Social Thought
- B.A. in Data Analytics
-

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 Judith Herb College of Arts, Social Sciences and Education 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 Judith Herb College of Arts, Social Sciences and Education. Credit restrictions and level requirements for Judith Herb College of Arts, Social Sciences and Education 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 Judith Herb College of Arts, Social Sciences and Education as specified in the catalog for the year in which they enter the Judith Herb College of Arts, Social Sciences and Education. In some cases, not all the credits that transfer into The University of Toledo will apply toward a degree in the Judith Herb College of Arts, Social Sciences and Education, 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 Judith Herb College of Arts, Social Sciences and Education 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 Judith Herb College of Arts, Social Sciences and Education 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 Judith Herb College of Arts, Social Sciences and Education, 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 Judith Herb College of Arts, Social Sciences and Education may earn a second bachelor's degree in the Judith Herb College of Arts, Social Sciences and Education 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 Judith Herb College of Arts, Social Sciences and Education 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 Judith Herb College of Arts, Social Sciences and Education.

A student earning a Bachelor of Arts in the Judith Herb College of Arts, Social Sciences and Education 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 Judith Herb College of Arts, Social Sciences and Education.

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 Judith Herb College of Arts, Social Sciences and Education 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 Judith Herb College of Arts, Social Sciences and Education.

READMISSION OF FORMER STUDENTS

Students who have withdrawn from the Judith Herb College of Arts, Social Sciences and Education (or a previously-existing college containing a major currently offered in the Judith Herb College of Arts, Social Sciences and Education) 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.

Requirements for Direct-From-High-School Students

- 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

Requirements for Students with an Associate's Degree

Students holding associate's degrees from accredited colleges are encouraged to enroll. Students may earn a bachelor's degree upon completion of two or more additional years of full-time study; see the advisor 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 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 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.

Criminal Justice 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.

Education Admission Policies

New First Time Students

To be admitted to the Judith Herb College of Arts, Social Sciences and 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 Arts, Social Sciences, and Education (JHCASE) 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 JHCASE 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 JHCASE 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.

Transfer Students with Credit from Another Institution

Students with satisfactory academic records wishing to transfer into The University of Toledo and JHCASE 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 JHCASE 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 JHCASE must earn 12 hours of college-level work and be in good academic standing.

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 Arts, Social Sciences, and 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 Arts, Social Sciences, and 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 Academic Advising Center.

Honors Program

The Honors Program in the Judith Herb College of Arts, Social Sciences, and 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.

Admission Policies

Requirements for Direct-From-High-School Students

- 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

Students not qualifying for admission will be admitted through the Exploratory Studies program in University College.

Requirements for Students with an Associate's Degree

Students holding associate's degrees from accredited colleges are encouraged to enroll. 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 this program 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 Judith Herb College of Arts, Social Sciences, and Education 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.

Legal and Paralegal Studies: 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.

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 Academic Advising Center (Rocket Hall, Room 1300). You can make an appointment with a University Advisor at the Academic Advising Center by calling (419) 530-4444 or emailing to advising@utoledo.edu.

University advisors do important work for UToledo students, including:

- providing essential information;
- helping students select courses to meet university general education and college requirements;
- suggesting courses for the exploration of majors and minors; and
- helping 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. Major and Program Advisors 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 advisor on their student profile in the 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 Judith Herb College of Arts, Social Sciences, and Education 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 Judith Herb College of Arts, Social Sciences, and Education major or minor or change a JHCASE major or minor previously declared, students must contact the UToledo Academic Advising Center (advising@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.

TRANSIENT (GUEST) ENROLLMENT AT ANOTHER INSTITUTION

Judith Herb College of Arts, Social Sciences, and Education students must have advance permission both to enroll elsewhere as a guest and to take specific courses. The Guest Student form for this purpose is available at https://www.utoledo.edu/admission/guests.html.

Students enrolling without permission will be considered transfer readmits upon their return to UT. JHCASE students enrolled as transients or guests at another institution must submit an official transcript to the UT Office of Admission at the conclusion of the enrolled term after final grades have posted. Grades of all courses attempted in the major, minor, and the UT core curriculum will be used in cumulative GPA calculations.

GPA RECALCULATION FOR REPEATED COURSES

The Judith Herb College of Arts, Social Sciences, and Education permits a maximum of 18 semester hours of course work to be deleted from the GPA calculation. Students who have had their GPAs recomputed under the Academic Forgiveness Policy are not eligible for grade deletions. Criteria governing GPA recalculation are given in the undergraduate policy *3364-71-*

07: Repeating a course and calculating GPA at http://www.utoledo.edu/policies/

Students should check with the Utoledo Academic Advising Center for more specific information on this policy. Students may not use repeat courses taken at other institutions to qualify for a GPA recalculation.

WITHDRAWAL POLICY (W, IW, DR GRADES)

A student who wants to withdraw from a course must withdraw online or file a petition in the Registrar's Office by the deadline in the term of enrollment - https://www.utoledo.edu/offices/registrar/forms.html. The number of credit hours of W (or the former grades of IW or DR - see note below) is limited to 22 hours for all undergraduate students in degree programs in the Judith Herb College of Arts, Social Sciences, and Education. Once a student has accumulated 22 hours of W, IW or DR, any further withdrawal will be counted as an F in computation of the student's GPA for purposes of probation or suspension. In addition, students who receive financial aid risk the loss of financial aid if they accumulate excessive withdrawal hours.

Students who transfer into the Judith Herb College of Arts, Social Sciences, and Education from another college at The University of Toledo will bring with them the number of W, IW and DR grades accumulated in their previous work.

Note: Assignment of the IW and DR grades has been discontinued at The University of Toledo.

ACADEMIC PROBATION

A student whose cumulative GPA is less than 2.0 is automatically placed on probation until a 2.0 cumulative GPA is achieved (See Withdrawal Policy above). It is recommended that a student on probation not enroll for more than 12 to 14 credits.

ACADEMIC SUSPENSION

Academic suspension means that a student is prohibited from registering at The University of Toledo for a period of at least one semester. Students are subject to academic suspension if their semester and cumulative GPA falls below a 2.0 after a semester on Academic Warning. Students may remove Incompletes while under suspension. Please see the link on the Academic Standing Policy (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.utoledo.edu%2Fpolicies%2Facademic%2Fundergraduate%2Fpdfs%2F3364-71-01-1%2520Academic%2520standing%2520procedure.pdf&data=05%7C02%7CEdmund.Lingan%40utoledo.edu%7Cae60f51032934e9694f708dc9d11157c%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C638557943911951410%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLC%7C0%7C%7C%7C%7C&sdata=C9vl1cj8MeK3PQHnxwmut7izPWdEk6IhCq2ZDXFKScw%3D&reserved=0).

Trial Readmission Policy

After the required suspension period, a student may petition for readmission to the Judith Herb College of Arts, Social Sciences, and Education through the Student Services Office. They must email CALAdvising@utoledo.edu and request readmission. From there, students will need to follow the instructions provided via email. If the petition is accepted, the college committee will determine the terms of the conditional registration agreement, under which the student will be permitted to re-enroll. Suspended students who are granted readmission must maintain the designated GPA for each semester thereafter and meet the conditions of their readmission agreement.

Students failing to meet these conditions are subject to a one-year suspension.

Dismissal Policy

Students who fail to meet the conditions for readmission after their second suspension are subject to dismissal and are not eligible for readmission to the Judith Herb College of Arts, Social Sciences, and Education for at least three years. Criteria governing this policy are detailed in the undergraduate policy 3364 71 06: Academic Forgiveness - http://www.utoledo.edu/policies/academic/

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, then to the Associate Dean of the college 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 University of Toledo Student Handbook on the Student Affairs webpage:* http://www.utoledo.edu/studentaffairs/index.html (http://www.utoledo.edu/studentaffairs/)). A student must begin the appeals process no later than the end of the semester following the one in which the grievance arose.

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 Judith Herb College of Arts, Social Sciences, and Education 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/ (p. 616).

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 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/studentservices/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.

Education 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 Academic Advising Center 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).

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 JHCASE 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 JHCASE.

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 JHCASE Education programs. A student may be dismissed for:

- Failing to meet the conditions of readmission after suspension from a JHCASE Education program.
- 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.

Education Academic Policies

The Judith Herb College Arts, Social Sciences and 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 Arts, Social Sciences and 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 State Board of Education 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 a 35-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).

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 Arts, Social Sciences and 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.

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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 Arts, Social Sciences and Education. A student may be dismissed for:

- Failing to meet the conditions of readmission after suspension from the Judith Herb College of Arts, Social Sciences and 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.

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%20%20Repeating%20a%20course%20and%20recaluation%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 mulitple 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%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLC%7C3000%7C%7C%7C&sdata=uFkHts67myc61mCTdPnW6uJgOlgPvsI5SuD115Xxr8E%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 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 Judith Herb College of Arts, Social Sciences, and Education 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 Judith Herb College of Arts, Social Sciences, and Education, 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 Judith Herb College of Arts, Social Sciences, and Education section of this catalog.

Minors

Many Judith Herb College of Arts, Social Sciences, and Education 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 Judith Herb College of Arts, Social Sciences, and Education core curriculum requirements. A minimum GPA of 2.0 is required in the minor. Credit hours for a minor contained in the Judith Herb College of Arts, Social Sciences, and Education 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 Judith Herb College of Arts, Social Sciences, and Education 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.

Writing Across the Curriculum

Students must pass both Composition I and II with a C or better. The Judith Herb College of Arts, Social Sciences, and Education 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 one writing intensive courses. The Judith Herb College of Arts, Social Sciences, and Education 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 Judith Herb College of Arts, Social Sciences, and Education. Transfer students who have not taken writing intensive courses must meet the Judith Herb College of Arts, Social Sciences, and Education 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/)

Education 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 Arts, Social Sciences, and 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 Arts, Social Sciences, and 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 Arts, Social Sciences, and 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.

An Instructional Plan will be developed by the faculty instructor to support the student's success in their second attempt based on goals identified during the student's first attempt. The Instructional Plan will describe learning goals with strategies for meeting the goals and provide guidance regarding a timeline for achieving the goals. The written Instructional Plan will be reviewed and approved by the Associate Dean.

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.

An Instructional Plan will be developed by the faculty instructor to support the student's success in their second attempt based on goals identified during the student's first attempt. The Instructional Plan will describe learning goals with strategies for meeting the goals and provide guidance regarding a timeline for achieving the goals. The written Instructional Plan will be reviewed and approved by the Associate Dean.

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, students must complete an educator preparation program and fulfill all requirements of the Ohio Department of Education & Workforce for the educator license 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 Experiences 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 tests 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.

World Languages Assessment

The State of Ohio requires that teacher education students in world languages must satisfactorily complete the American Council on the Teaching of Foreign Languages (ACTFL) proficiency tests for spoken and written language provided by Language Testing International (https://www.languagetesting.com/testing-for-teacher-certification/) (LTI). 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.languagetesting.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 Arts, Social Sciences, and Education. The dean or dean's designee will recommend licensure to the Ohio State Department of Education & Workforce only in the teaching fields in which the student meets all requirements as defined in this catalog.

College of Arts, Social Sciences and Education BA 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 Judith Herb College of Arts, Social Sciences, and Education 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
1. Orientation		
All new first#yearstudents are required to take AR 1000 Orientation. The course is optional for transfer students.		
AR 1000	First Year Orientation	
2. English Composition (University of Toledo Core Curriculum and College of Arts, Social Sciences, and Education BA requirement) [1]		
Select one of the following tracks:		
A. Native speakers track (for students for whom English is a first language)		
ENGL 1110	College Composition I	
or ENGL 1010	College Composition 1 Co-Requisite	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	
or ENGL 295	Technical Writing	
or ENGL 296	Professional and Business Writing	
B. Non-native speakers track (for students for whom English is a second language) [2]		
ENGL 1020	Writing And Grammar For Students Of English As A Second Language [2]	
ENGL 1110	College Composition I [3]	
ENGL 1130	College Composition II: Academic Disciplines And Discourse	
or ENGL 295	Technical Writing	
or ENGL 296	Professional and Business Writing	
3. Breadth Requirement		
To complete the breadth requirement, Judith Herb College of Arts, Social Sciences, and Education Bachelor of Arts degree students should select at least 1 course from each of the 2 categories and a total of 3 courses for 9 credits. Courses may not double count with other requirements such as UToledo core or major requirements.		
A. Arts, Culture, and Humanities		*9*
At least one course from art, art history, communication, English, film, foreign languages, history, interdisciplinary programs (Africana Studies, Asian Studies, Disability Studies, Women and Gender Studies), music, philosophy, religious studies, and theatre.		
B. Social Sciences		
At least one course from anthropology, criminal justice, economics, geography, political science, psychology, and sociology.		
4. World Language [4]		
Two semesters of a foreign language.		
ARBC 1120	Elementary Arabic II	
CHIN 1120	Elementary Chinese II	
FREN 1120	Elementary French II	
FLAN 1980	Special Topics (Elementary Language II)	
GERM 1120	Elementary German II	
JAPN 1120	Elementary Japanese II	
LAT 1120	Elementary Latin II	
SPAN 1120	Elementary Spanish II	
SPED 3680	American Sign Language II	
5. Writing Across Curriculum		
Students must pass one writing intensive course. Major programs may require that this course be in the major. Transfer students from institutions that have required writing intensive courses should ideally provide a syllabus to the Registrar Transfer Equivalency department to show that they have completed writing intensive courses comparable to those required in the College of Arts, Social Sciences and Education. Transfer students who have not taken writing intensive courses must meet the College of Arts, Social Sciences and Education Writing Across the Curriculum requirements.		

1. Students must pass Composition I and Composition II with a grade of C or better.
2. Non-native speakers will take an English placement test to determine appropriate level.
3. Non-Native speakers of English should choose an ESL designated section of ENGL 1110.
4. Students pursuing the BM in Music or the BFA in Studio Art are exempt from this requirement.

Honors

Honors work in the Judith Herb College of Arts, Social Sciences and Education 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. 308) and requires students to complete both Departmental Honors and the full JSHC requirements.

DEPARTMENTAL HONORS IN JUDITH HERB COLLEGE OF ARTS, SOCIAL SCIENCES AND EDUCATION

All departments in the Judith Herb College of Arts, Social Sciences and Education 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 Judith Herb College of Arts, Social Sciences and Education 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 Judith Herb College of Arts, Social Sciences and Education 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 Judith Herb College of Arts, Social Sciences and Education 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 to 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).

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 Visual Art (p. 395)
- B.F.A. in Studio Art (p. 397)
- Arts Management and Entrepreneurship Certificate (https://catalog.utoledo.edu/undergraduate/arts-social-sciences-education/art/arts-management-and-entrepreneurship-certificate/)
- Art Museum Practices Certificate (https://catalog.utoledo.edu/undergraduate/arts-social-sciences-education/art/art-museum-practices-certificate/)
- Graphic Design Certificate (p. 405)
- Photography Certificate (p. 405)
- Minor in Art History (p. 405)
- Minor in Art Museum Practices (https://catalog.utoledo.edu/undergraduate/arts-social-sciences-education/art/minor-art-history/minor-art-museum-practices/)
- Minor in Community Arts Education (p. 405)
- Minor in Graphic Design (p. 406)
- Minor in Studio Art (p. 406)

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 explored as the rationale for contemporary curricula in art education. This course has a prerequisite of an upper division score of 1 and is a corequisite with AED 3510 Art Education Practicum: Secondary.
Prerequisites: Upper Division with a score of 1
Corequisites: AED 3510
Term Offered: Spring

AED 3510 Art Education Practicum: Secondary
[1 credit hour]
This practicum is a supervised opportunity for students to gain experience in the classroom and other settings that provide instruction to children to students in a Secondary environment (Grades 6-12). The course assists students in acquiring the necessary knowledge and skills needed to function as an art educator in a changing and diverse society through the act of observing and assisting a mentor teacher assigned by the University, and focuses on lesson plan implementation, differentiated instruction, behavior management strategies and assessment of student learning in their practicums. Furthermore, field activities assist students in understanding learners and the learning processes; gaining experience using instructional technology necessary for professional practice; and working effectively in both professional and community roles. This course has a prerequisite of an upper division score of 1.
Prerequisites: Upper Division with a score of 1
Corequisites: AED 3500
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 on the ways art educators develop and implement an art education curriculum in schools, with a particular focus on art history and primary school (K-5) environments. This course has a prerequisite of an upper division score of 1 and is a corequisite with AED 4460 Art Education Practicum: Primary.
Prerequisites: Upper Division with a score of 1
Corequisites: AED 4460
Term Offered: Fall

AED 4460 Art Education Practicum: Primary
[1 credit hour]
This practicum is a supervised opportunity for students to gain experience in the classroom and other settings that provide instruction to children to students in a Primary environment (Grades K-5). The course assists students in acquiring the necessary knowledge and skills needed to function as an art educator in a changing and diverse society through the act of observing and assisting a mentor teacher assigned by the University, and focuses on lesson plan implementation, differentiated instruction, behavior management strategies and assessment of student learning in their practicums. Furthermore, field activities assist students in understanding learners and the learning processes; gaining experience using instructional technology necessary for professional practice; and working effectively in both professional and community roles. This course has a prerequisite of an upper division score of 1.
Prerequisites: Upper Division with a score of 1
Corequisites: AED 4450
Term Offered: 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 & 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]
Independent study in studio topics with approval from instructor. May be repeated when the topic varies. Permission of instructor only. Grading is Pass/NC. This course has a lab fee associated.
Term Offered: Spring, Fall

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 & 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
Core Arts & Humanities

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
Core Arts & Humanities

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 & Humanities

ARTH 2100 Asian Art
[3 credit hours]
An introduction to the architecture, painting and sculpture of India, China and Japan and their relationship to the major religions and philosophies of each culture. Web-assisted course.
Multicultural Non-US Diversity

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 & 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 4350 Global Art Market
[3 credit hours]
Welcome to ARTH 4350: Global Art Market – WAC. This course is for anyone who is interested in the business of art in today's market. In this course, we will learn about the history and current state of the global art market and its broad range of institutions, including private galleries, art fairs, creative economies, arts commissions and centers, international auction houses, and major museums. In addition to readings, discussions, various writings, and class presentations, we will have conversations with professionals at the Toledo Museum of Art and the Arts Commission of Greater Toledo, local gallerists, and professionals from throughout the United States and Europe.
Term Offered: 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 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 Judith Herb College of Arts, Social Sciences and Education, 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
Foundational Art Studies (Basic Skills Area)		
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
Core Art Studies		
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 [2]		
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 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 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 [4]	
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	Asian Art	
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	

[1] 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.

[2] 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 or ART 2030	Graphic Design: Print or Introduction to Photography	3
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 or ARTH 2550 or ARTH 3500	History Of Modern Art or History of Graphic Design or History Of Photography	3
Social Sciences Core		3
Arts/Humanities Core (History)		3
	Hours	**15**
Fifth Term		
Advanced Art Studies		6
Elementary Foreign Language I		4
College Required 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	Asian Art	
ARTH 2200	Ethnographic Art	
ARTH 3300	African Art	
Elementary Foreign Language II		4
	Hours	**16**
Seventh Term		
ART 3400 or ART 3850 or ART 4850	Concepts in Art, Studio and Theory or Gallery Practices or Professional Practices	3
Intermediate Foreign Language I or approved culture course		3
US Diversity or Elective		3
ARTH 3400 or ARTH 3500 or ARTH 4500	Contemporary Art or History Of Photography or Contemporary Art And Theory	3
	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 three areas of studio concentration:

- Art Education,
- Interdisciplinary Art Studies,
- Graphic and Interactive Design (graphic design, interactive design, coding, games, video/ time-based media, etc.),

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
Foundational Art Studies in Studio Art		
Drawing		
ART 1080	Foundations of Drawing I	3
ART 1090	Foundations of Drawing II	3
Design		
ART 1050	Foundations of 2D Design	3
ART 1060	Foundations of 3D Design	3
Digital Media		
ART 1070	Foundations of Digital Media	3
Select 15 hours of general education requirements and art history [1]		15
Total Hours		**30**

[1] 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) 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.

- Art Education (p. 399)
- Interdisciplinary Art Studies (p. 400)
- Graphic and Interactive Design (p. 401) (graphic design, interactive design, coding, games, video/ time-based media, etc.)

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:

Studio Art: Art Education Concentration, BFA

Code	Title	Hours
Common BFA Major		
A minimum GPA of 2.7 required		
Foundational Art Studios		18
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	
ART 1090	Foundations of Drawing II	
Core Art Studios		15
Students should select studios that bridge to advanced coursework in the concentration.		
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 History Studies		15
ARTH 2050	History of Western Art I	
ARTH 2060	History of Western Art II	
ARTH 2080	History Of Modern Art	
or ARTH 2550	History of Graphic Design	
ARTH 2100	Asian Art	
or ARTH 220	Ethnographic Art	
or ARTH 325	Topics In Asian Art	
or ARTH 330	African Art	
or ARTH 335	Ancient Art Of The Americas	
ARTH 3400	Contemporary Art	
or ARTH 3500	History Of Photography	
or ARTH 4500	Contemporary Art And Theory	
Total Hours		**48**

Art Education Concentration

Code	Title	Hours
Complete all - A minimum GPA OF 2.7 required		
AED 2100	Art Education for the Pre-Primary and Primary Child [1]	3
AED 3500	Innovations In Art Education [2]	3
AED 3510	Art Education Practicum: Secondary [2]	1
AED 4140	Art Education For The Special Child [2]	3
AED 4450	Curriculum In Art Education [2]	3
AED 4460	Art Education Practicum: Primary [2]	1
AED 4900	Internship/Student Teaching Seminar [3]	2
AED 4930	Internship/Student Teaching In Art Education [3]	12
Total Hours		**28**

1 Pre-professional Education course, see licensure pathway below.
2 Professional Education course, see licensure pathway below.
3 Professional Education Internship, see licensure pathway below.

Licensure Pathway

Current Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (OAE) tests and edTPA Portfolio Assessment as specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

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
AED 2100	Art Education for the Pre-Primary and Primary Child	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
EDU 1000	Orientation To Education	1
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

Science of Reading: All courses completed with a C or higher. Courses may not be transferred from another institution.

Code	Title	Hours
CI 4490	Content Area Literacy	3

Admission to Professional Education: Admission is required prior to enrolling in Professional Education courses.

- Enrolled as a regular student in Studio Art: Art Education Concentration
- 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		
AED 3500	Innovations In Art Education	3
AED 3510	Art Education Practicum: Secondary	1
AED 4140	Art Education For The Special Child	3
AED 4450	Curriculum In Art Education	3
AED 4460	Art Education Practicum: Primary	1
*Professional Education Internship**		
AED 4900	Internship/Student Teaching Seminar	2
AED 4930	Internship/Student Teaching In Art Education (6 credits secondary, 6 credits elementary)	12

Note: These courses are listed above for the concentration in art education.

*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

Interdisciplinary Art Studies Concentration, BFA

Code	Title	Hours
Common BFA Major		
Foundational Art Studios		18
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	
ART 1090	Foundations of Drawing II	
Core Art Studios		**15**
Students should select studios that bridge to advanced coursework in the concentration.		
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 History Studies		**15**
ARTH 2050	History of Western Art I	
ARTH 2060	History of Western Art II	
ARTH 2080	History Of Modern Art	
or ARTH 255	History of Graphic Design	
ARTH 2100	Asian Art	
or ARTH 2206	Ethnographic Art	
or ARTH 3250	Topics In Asian Art	
or ARTH 3300	African Art	
or ARTH 3350	Ancient Art Of The Americas	
ARTH 3400	Contemporary Art	
or ARTH 350	History Of Photography	
or ARTH 450	Contemporary Art And Theory	
Total Hours		**48**

Code	Title	Hours
Interdisciplinary Studies Concentration		
Students must complete 8 studios to complete the concentration with a minimum of 4 completed at the 3000-4000 level. Students may enroll in 2000-level studios that were not completed for their Core Art Studies.		*24*
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 3100	Printmaking: Topics	
ART 3110	2D: Topics	
ART 3120	Painting: Topics	
ART 3200	Sculpture: Topics	
ART 3210	Ceramics:Topics	
ART 3900	Advanced Graphic Design:Topic	
ART 3950	Contemporary Design Methods and Practices	
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 4910	Independent Study	

ART 4940	Internship	
ART 4950	Design Project: Topics	
ART 4990	Special Studies	
Supportive courses in Art and Design		**6**
ART 3400	Concepts in Art, Studio and Theory	
ART 3850	Gallery Practices	
or ART 4850	Professional Practices	
Total Hours		**30**

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:
4. The initial application review
5. Two semester progress reviews
6. 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

Code	Title	Hours
Departmental Honors		
ART 4400	BFA Thesis	3

Graphic and Interactive design (GID) Concentration

Code	Title	Hours
Common BFA Major		
Foundational Art Studies (Basic Skills Area)		
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
Core Art Studio		*15*
Students should select studios that bridge to advanced coursework in the concentration.		
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 History Studies		15
ARTH 2050	History of Western Art I	
ARTH 2060	History of Western Art II	
ARTH 2080	History Of Modern Art	
or ARTH 255	History of Graphic Design	
Total Hours		**48**

Code	Title	Hours
Graphic and Interactive Design Concentration		
Students must complete 8 studios to complete the concentration with a minimum of 4 completed at the 3000-4000 level. Students may enroll in 2000-level studios that were not completed for their Core Art Studies.		24
ART 3000	Photography: Topics	
ART 3950	Contemporary Design Methods and Practices	
ART 4000	Advanced Photography: Topics	
ART 4010	Game Design: Topic	
ART 4020	Time, Motion, Space: Topics	
Supportive courses in Art and Design		
ART 3850	Gallery Practices	3
or ART 4850	Professional Practices	
ART 4950	Design Project: Topics	3
ART 3950	Contemporary Design Methods and Practices	3
or ARTH 3900	Art Museum Practices	
ART 3900	Advanced Graphic Design:Topic	3
Total Hours		**36**

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:
4. The initial application review
5. Two semester progress reviews
6. 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

Code	Title	Hours
ART 4400	BFA Thesis	3

[1] 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.

[2] The AAS courses provide a consistent framework of categories within each area of concentration:
- Graphic and Interactive Design
- Interdisciplinary Art Studies

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.

[3] 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.

[4] Usually taken in the student's junior or senior year.

[5] An exhibition-based capstone course usually taken during the student's final year.

[6] 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.

- Art Education Concentration (p. 402)
- Interdisciplinary Art Studies Concentration (p. 400)
- Graphic and Interactive Design Concentration (p. 404)

Art Education Concentration

First Term		Hours
AR 1000	First Year Orientation	1
ART 1040	Foundations of Art Studio Technology	3
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
	Hours	**16**
Second Term		
ART 1060	Foundations of 3D Design	3
ART 1070	Foundations of Digital Media	3
ART 1090	Foundations of Drawing II	3
MATH 1180	Reasoning With Mathematics	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
	Hours	**15**
Third Term		
Core Art Studio		9
Arts/Humanities Core		3
Core Elective		3
	Hours	**15**
Fourth Term		
ARTH 2060	History of Western Art II	3
Core Art Studio		6
Core Elective		3
Social Sciences Core		3
	Hours	**15**

Fifth Term		
ARTH 3950	AMP	3
ART 3900	Advanced Graphic Design:Topic	3
Advanced Art Studio		6
Natural Science Core		3
Natural Science Core Laboratory		1
	Hours	**16**
Sixth Term		
ART 4950	Design Project: Topics	3
Advanced Art Studio		6
ARTH 2080	History Of Modern Art	3
ARTH 2100 or ARTH 2200 or ARTH 3250 or ARTH 3300 or ARTH 3350	Asian Art or Ethnographic Art or Topics In Asian Art or African Art or Ancient Art Of The Americas	3
	Hours	**15**
Seventh Term		
ARTH 3400	Contemporary Art	3
Advanced Art Studio		6
Natural Sciences Core		3
Social Science Core		3
	Hours	**15**
Eighth Term		
ART 4400	BFA Thesis [1]	3
Advanced Art Studio		6
Arts/Humanities Core		3
Elective		1
	Hours	**13**
	Total Hours	**120**

Interdisciplinary Art Studies Concentration

First Term		**Hours**
AR 1000	First Year Orientation	1
ART 1040	Foundations of Art Studio Technology	3
ART 1050	Foundations of 2D Design	3
ART 1080	Foundations of Drawing I	3
ARTH 2050	History of Western Art I	3
ENGL 1110 or ENGL 1010	College Composition I or College Composition 1 Co-Requisite	3
	Hours	**16**
Second Term		
ART 1060	Foundations of 3D Design	3
ART 1070	Foundations of Digital Media	3
ART 1090	Foundations of Drawing II	3
ENGL 1130 or ENGL 2950 or ENGL 2960	College Composition II: Academic Disciplines And Discourse or Technical Writing or Professional and Business Writing	3
MATH 1180	Reasoning With Mathematics	3
	Hours	**15**
Third Term		
Core Art Studio		9
Arts/Humanities Core		3
Core Elective		3
	Hours	**15**
Fourth Term		
ARTH 2060	History of Western Art II	3
Core Art Studio		6
Social Sciences Core		3
Core Elective		3
	Hours	**15**
Fifth Term		
ARTH 2100 or ARTH 2200 or ARTH 3250 or ARTH 3300 or ARTH 3350	Asian Art or Ethnographic Art or Topics In Asian Art or African Art or Ancient Art Of The Americas	3
Advanced Art Studio		6
Natural Sciences Core		3
Natural Sciences Core Laboratory		1
Diversity of US		3
	Hours	**16**
Sixth Term		
ARTH 2080	History Of Modern Art	3
Advanced Art Studio		6
Social Sciences Core		3
Arts/Humanities Core		3
	Hours	**15**
Seventh Term		
ARTH 3400	Contemporary Art	3
Advanced Art Studio		6
Natural Sciences Core		3
Non#US Diversity		3
	Hours	**15**
Eighth Term		
ART 4400	BFA Thesis [1]	3
Elective		4
Advanced Art Studio		6
	Hours	**13**
	Total Hours	**120**

[1] Spring only course for Departmental Honors. For non-Honor's student, may complete an additional elective.

Graphic and Interactive Design Concentration

First Term		Hours
AR 1000	First Year Orientation	1
ART 1040	Foundations of Art Studio Technology	3
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
	Hours	**16**
Second Term		
ART 1060	Foundations of 3D Design	3
ART 1070	Foundations of Digital Media	3
ART 1090	Foundations of Drawing II	3
MATH 1180	Reasoning With Mathematics	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
	Hours	**15**
Third Term		
Core Art Studio		9
Arts/Humanities Core		3
Core Elective		3
	Hours	**15**
Fourth Term		
ARTH 2060	History of Western Art II	3
Core Art Studio		6
Core Elective		3
Social Sciences Core		3
	Hours	**15**
Fifth Term		
ARTH 3950	AMP	3
ART 3900	Advanced Graphic Design:Topic	3
Advanced Art Studio		6
Natural Science Core		3
Natural Science Core Laboratory		1
	Hours	**16**
Sixth Term		
ART 4950	Design Project: Topics	3
Advanced Art Studio		6
ARTH 2080	History Of Modern Art	3
ARTH 2100 or ARTH 2200 or ARTH 3250 or ARTH 3300 or ARTH 3350	Asian Art or Ethnographic Art or Topics In Asian Art or African Art or Ancient Art Of The Americas	3
	Hours	**15**
Seventh Term		
ARTH 3400	Contemporary Art	3
Advanced Art Studio		6
Natural Sciences Core		3
Social Science Core		3
	Hours	**15**
Eighth Term		
ART 4400	BFA Thesis [1]	3
Advanced Art Studio		6
Arts/Humanities Core		3
Elective		1
	Hours	**13**
	Total Hours	**120**

Learning Outcomes

Art Education Concentration

- Students demonstrate their competence in visual art techniques, art history, and applications of art.
- Students create visual arts unit plans that are specific to the populations and contexts with which they are working.
- Students craft an interview portfolio that exhibits their competence as a professional art educator.
- Students practice professional skills in their self-presentation and in their relationships with colleagues.
- Students plan and organize educational environments that promote learning and empathy.

Interdisciplinary Art Studies Concentration

- Aesthetic abilities: Students will create artworks with an aesthetic order that expresses their unique vision.
- 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 to gather information about areas of interest specific to their discipline.

Graphic and Interactive Design Concentration

- 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.

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
Total Hours		**9**

- 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.

Photography Certificate

The following three courses make up the certificate:

Code	Title	Hours
ART 1070	Foundations of Digital Media	3
ART 2030	Introduction to Photography	3
ART 4000	Advanced Photography: Topics	3
Total Hours		**9**

- 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 Photographic 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, Social Sciences and Education and the completion of a minimum of 21 hours of art history courses, which must include the following:

Code	Title	Hours
Core Courses		
ARTH 2050	History of Western Art I [1]	3
ARTH 2060	History of Western Art II	3
Select at least one of the following courses in non-Western art:		3
ARTH 2100	Asian Art	
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 [2]		12
Total Hours		**21**

1 Survey history of Western art courses may be taken in any order.

2 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
Art (3 credits)		
ART 3910	Outsider Art and Community Practice	3
Art Education (9 credits)		
AED 3300	Crafts In Art	3
AED 4300	Media And Methods In Therapeutic Art	3
AED 4560	Introduction To Therapeutic Art	3
Disability Studies (6 credits)		**6**
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	
Or other DST course chosen in consultation with advisor.		
Total Hours		**18**

- 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
The courses listed below are required for the minor in Graphic Design		**9**
ART 1070	Foundations of Digital Media	
ART 2010	Graphic Design: Print	
ART 2020	Graphic Design: Web	
Students may select any additional 9 credits from the electives listed below		**9**
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	
Total Hours		**18**

- 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 18 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
Foundational Art Studies		
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
Total Hours		**18**

Students must maintain a minimum GPA of 2.0. for all course work in the minor (in keeping with Judith Herb College of Arts, Social Sciences, and Education 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 and Media has offices, studio facilities, classrooms, and computer labs in Rocket Hall. Communication offers courses of study that lead to a Bachelor of Arts in Communication. Students will choose a focus of study within one of four concentrations: Digital Communication, Interpersonal Communication, Media Communication or Organizational and Strategic Communication. 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. In addition, students may earn a minor in General Communication. The Department of Communication and Media also offers students the opportunity to earn micro-credentials through Certificates in Audio

Production, Media Production, Organizational, Public Relations and/or Social Media.

It should be noted that courses for the major in Communication and Media cannot be taken as P/NC.

Degrees Offered

- B.A. in Communication (p. 411)
- General Communication Minor (p. 417)
- Audio Production Communication Certificate (p. 417)
- Health Communication Certificate (p. 418)
- Journalism Communication Certificate (p. 418)
- Media Production Communication Certificate (p. 418)
- Organizational Communication Certificate (p. 418)
- Public Relations Communication Certificate (p. 419)
- Social Media Communication Certificate (p. 419)

COMM 1010 Communication Principles And Practices
[3 credit hours]
An introductory course that provides instruction and practice in human communication including interpersonal communication, organizational strategic communication, digital communication and media communication.
Term Offered: Spring, Summer, Fall
Core Arts & Humanities

COMM 2000 Media Communication and Society
[3 credit hours]
This course is an 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]
This course is an 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 C-
Term Offered: Spring, Fall

COMM 2130 Media Writing 1
[3 credit hours]
This course is an applied overview of reporting and writing for all media formats: print, digital, broadcasting, and public relations. Emphasis will be placed on journalistic ethics, credibility of information and accuracy.
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 course introduces the student to the terminology and single camera production procedures used in field television production and serves as a foundation for story-telling through this medium.
Term Offered: Spring, Summer, Fall

COMM 2210 Introduction to Audio Production
[3 credit hours]
This course introduces the terminology and procedures used in audio production, such as studio recording and editing sound. Students will be instructed in the use of audio production equipment and the techniques used in producing various types of audio productions, including the production of commercials, public service announcements, and demos for announcing jobs.
Term Offered: Spring, Fall

COMM 2300 Photojournalism
[3 credit hours]
This course provides a foundational understanding of the study and practice of photography as a major component of modern journalism. Emphasis is placed on using still and motion visuals to tell compelling and accurate news stories.
Term Offered: Spring, Fall

COMM 2500 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]
This course introduces students to the principles, theories, and practice of oral communication, with an emphasis on developing applied skills in speech preparation, research, organization, verbal and nonverbal delivery, and critical listening. Students will focus on adapting messages for diverse audiences and contexts, making ethical choices in selecting and attributing ideas and evidence, and building confidence as public speakers. The knowledge and experience gained will equip students for success in academic, professional, personal, and social contexts.
Term Offered: Spring, Summer, Fall
Core Arts & Humanities

COMM 2720 Introduction to Public Relations
[3 credit hours]
This course introduces public relations as a strategic, ethical communication practice. Students examine public relations' evolution, key theories, communication models, and its role within integrated communication. Emphasis is placed on global influences and the impact of public relations on organizations and communities. Students learn to apply theory to practice, develop effective strategies, and explore career paths and the future of the profession.
Term Offered: Spring, Fall

COMM 2820 Group Communication
[3 credit hours]
An introductory course on the 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]
This course is a review and application of interpersonal communication theory and research in a variety of one-to-one social contexts. Explore the development, maintenance, and termination of interpersonal relationships.
Term Offered: Spring, Summer, Fall
Core Arts & 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]
This course is 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 2
[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 C-
Term Offered: Spring, Fall

COMM 3150 Feature Writing
[3 credit hours]
This course will teach students how to identify, research, report and write non-fiction feature articles that combine fact-based journalistic writing with non-fiction writing techniques, including characters development, description and narrative arc.
Prerequisites: COMM 2130 with a minimum grade of C-
Term Offered: Spring, Fall

COMM 3210 Advanced Audio Production
[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 C-
Term Offered: Spring, Fall

COMM 3220 Multi-Camera Television Studio Production
[3 credit hours]
This course provides comprehensive hands-on training in multi-camera production in a TV studio setting. Students will gain practical experience in camera techniques, audio engineering, lighting design, video switching, and production coordination while working collaboratively on live and recorded broadcasts within a simulated broadcast environment.
Prerequisites: COMM 2160 with a minimum grade of C-
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 live broadcast on the ESPN digital platforms, for live display in various venues such as the Glass Bowl, Savage Arena, Doermann Theatre, and online live streaming to YouTube.
Term Offered: Spring, Fall

COMM 3270 Multimedia Newswriting
[3 credit hours]
This course teaches students to gather and present news stories across multiple media platforms, including text, audio, video, and graphics, by developing skills in writing for different formats while incorporating multimedia tools to create engaging and comprehensive news packages.
Prerequisites: COMM 2130 with a minimum grade of C-
Term Offered: Summer, Fall

COMM 3330 Public Relations and Principles of Advertising
[3 credit hours]
This course explores public relations and advertising as key forms of strategic communication that shape meaning, identity, and public discourse. Emphasis is placed on how media platforms influence and shape consumer behavior, exploring the complex relationship between advertising, branding, marketing strategies, and societal values within a culture focused on consumption, analyzing how advertising interacts with direct communication efforts such as promotion and outreach.
Term Offered: Spring, Fall

COMM 3340 Visual Communication
[3 credit hours]
This practice-based course introduces students to the principles of visual communication through a hands-on approach. Students will learn how visual and textual elements work together to inform, persuade, and entertain diverse audiences. Using industry-standard tools, they will design and produce a range of multimedia artifacts, including digital photo galleries, posters, brochures, newsletters, memes, and infographics.
Term Offered: Spring, Fall

COMM 3380 Media Producing and Performance
[3 credit hours]
This course gives students the experience of being in front of the camera through a variety of performance assignments allowing them to practice 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 Strategies
[3 credit hours]
This intermediate course focuses on the presence of social media in various contexts of communication. Students learn strategies for using social media in these contexts to effectively communicate with others. The strategies covered 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; and planning, executing, and evaluating social media campaigns. Students earn an external social media certificate and use their acquired knowledge to analyze the effectiveness of social media communication strategies.
Prerequisites: COMM 2500 with a minimum grade of C-
Term Offered: Spring, Fall

COMM 3710 Podcasting
[3 credit hours]
In this course, students will focus on developing the necessary 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 for a client.
Prerequisites: COMM 2210 with a minimum grade of C-
Term Offered: Spring, Fall

COMM 3750 Cultural Diversity in Communication
[3 credit hours]
This course is a review and application of cultural diversity theory and research in a variety of communication contexts. 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.
Term Offered: Spring, Fall

COMM 3760 Health Communication
[3 credit hours]
This course is a review and application of health communication theory, research, and practice with a focus on culture and diversity.
Term Offered: Spring, Fall

COMM 3770 Modern Dating and Communication
[3 credit hours]
This course critically examines the evolution of human connection, the dating habits of humans in the modern era, and the increasing role that communication technologies play in the process.
Term Offered: Spring, Fall

COMM 3820 Persuasion Theory
[3 credit hours]
This course is an examination of the theory and practices of persuasion and compliance gaining, specifically as they relate to persuasive practices in everyday public communication and professional communication contexts.
Term Offered: Spring, Fall

COMM 3850 Research Methods in Everyday Life
[3 credit hours]
This course is an 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]
This course provides a comprehensive overview of professional business communication principles, equipping students with the ability to effectively compose various written documents, deliver impactful presentations, and navigate complex communication situations within the workplace. Students will practice tailoring their communication style to different audiences, utilizing appropriate technology, and adhering to ethical standards in professional communication.
Term Offered: Spring, Summer, Fall

COMM 4090 Media Communication Ethics
[3 credit hours]
This course introduces students to the fundamental principles of communication ethics and the impact of ethical decision-making in media and communication. Students will explore how values shape communication across various settings, including personal interactions, media, and organizational contexts. Through discussions, case studies, and critical analysis, students will learn to recognize ethical dilemmas, understand diverse perspectives, and apply ethical frameworks to real-world communication issues. The course encourages students to think critically about the responsibilities of individuals and organizations in maintaining ethical standards in a rapidly evolving media landscape.
Term Offered: Spring, Fall

COMM 4100 Multimedia Journalism
[4 credit hours]
This course provides hands-on experience in producing a student-run broadcast news program, encompassing all aspects of news gathering, writing, video production, editing, and on-camera delivery, allowing students to create a professional-quality newscast while learning essential broadcast journalism skills and ethics in a simulated newsroom environment; emphasis will be placed on teamwork and collaborative production.
Prerequisites: COMM 2130 with a minimum grade of C- and COMM 2160 with a minimum grade of C- and COMM 2220 with a minimum grade of C- or COMM 3380 with a minimum grade of C-
Term Offered: Spring, Fall

COMM 4220 Advanced Television Production
[4 credit hours]
This course builds upon foundational skills, focusing on advanced techniques, aesthetics, and the practical application of production concepts for effective communication in various media contexts. Includes working with remote equipment and digital editing software.
Prerequisites: COMM 2160 with a minimum grade of D-
Term Offered: Spring, Fall

COMM 4270 Special Event Planning
[3 credit hours]
This course is an application of practices and procedures associated with identification, analysis, planning, evaluation, and control of the operational, fiscal, and legal risks of special event planning.
Term Offered: Spring, Fall

COMM 4330 Integrated Media
[3 credit hours]
This course explores the creation and analysis of content across multiple media platforms, including print, digital, video, and social media, focusing on how to strategically combine these elements to reach audiences effectively, while developing skills in production, design, writing, and critical media analysis across various formats; students will often produce projects that integrate diverse media elements to address real-world communication challenges.
Prerequisites: COMM 2130 with a minimum grade of C- or COMM 2150 with a minimum grade of C- or COMM 2500 with a minimum grade of C-
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 4500 Social Media Campaigns
[3 credit hours]
This course allows students to 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 focuses 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.
Prerequisites: COMM 3500 with a minimum grade of C-
Term Offered: Spring, Fall

COMM 4630 Public Relations Campaigns
[3 credit hours]
This course equips students with the skills to design and execute strategic public relations campaigns. Emphasis is placed on crafting persuasive messages across diverse media channels, integrating emerging trends and technologies, and producing a portfolio showcasing research, writing, and multimedia materials.
Prerequisites: COMM 3720 with a minimum grade of C-
Term Offered: Spring, Fall

COMM 4640 Public Relations Case Studies
[3 credit hours]
This course focuses on analyzing successful and unsuccessful public relations strategies across various industries. Through case studies and discussions, students will explore what drives effective practices and how to adapt them for diverse organizational needs.
Prerequisites: COMM 3720 with a minimum grade of C-
Term Offered: Spring, Summer, Fall

COMM 4820 Family Communication
[3 credit hours]
This course 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, Fall

COMM 4830 Gender, Culture and Communication
[3 credit hours]
This course explores how gender and culture simultaneously shape and are shaped by communication through relationships, institutions, and society.
Term Offered: Spring, Summer, Fall

COMM 4840 Advanced Interpersonal Communication
[3 credit hours]
This course is an advanced approach to interpersonal communication focusing on research and theory. It will provide students the chance to analyze their interpersonal communication skills and further expand competency through application in personal and professional life situations.
Prerequisites: COMM 2840 with a minimum grade of C-
Term Offered: Spring, 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]
This course is an application of knowledge and skills through a project or research investigation related to an area of communication.
Term Offered: Spring, Summer, Fall

COMM 4940 Communication Internship
[1-6 credit hours]
This course enables students to earn credit for qualifying internships/job experiences in their areas of study (Digital Communication, Interpersonal Communication, Strategic/Organizational Communication or Media Communication). 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

The Bachelor of Arts program provides a foundation for students to excel in all areas of messaging. Students learn how to succeed in various fields and organizational environments (corporations, non-profits, media, etc.). Focused on both skills training and critical thinking, students prepare for careers in public relations, corporate communication, social media, media production, digital communication and other related areas. Students are encouraged to be active in experiential and service-learning projects through departmental courses as well as department sponsored student organizations such as the Communication Honors Society Lambda Pi Eta, The Public Relations Student Society of America (PRSSA) and The Society of Professional Journalists (SPJ) or UToledo student media such as the state of the art tv studio, the Collegian newspaper and WXUT-FM, 88.3.

Communication studies has four concentrations in which you can major:

- Digital Communication Concentration, BA
- Interpersonal Communication Concentration, BA
- Media Communication Concentration, BA
- Organization and Strategic Communication, BA

- Communication, Digital Communication Concentration, BA
- Communication, Interpersonal Communication Concentration, BA (p. 412)
- Communication, Media Communication Concentration, BA (p. 412)
- Communication - Organizational And Strategic Communication Concentration, BA (p. 413)

Communication, Digital 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	Communication Principles And Practices	3
or COMM 2000	Media Communication and Society	
COMM 2130	Introduction to Media Writing	3
COMM 2500	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 3340	Visual Communication	3
COMM 3500	Social Media Strategies	3
COMM 4090	Media Communication Ethics (WAC)	3
COMM 4340	Advanced Visual Communication CAPSTONE	3
or COMM 4500	Social Media Campaigns	
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	Introduction to Audio Production	3
COMM 2300	Photojournalism	3
COMM 2720	Introduction to Public Relations	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	Advanced Media Writing	3
COMM 3150	Feature Writing	3
COMM 3210	Advanced Audio Production	3

COMM 3220	Multi-Camera Television Studio Production	3
COMM 3260	Live Sports Production	3
COMM 3270	Multimedia Newswriting (WAC)	3
COMM 3330	Public Relations and Principles of Advertising	3
COMM 3380	Media Producing and Performance	3
COMM 3710	Podcasting	3
COMM 3750	Cultural Diversity in Communication	3
COMM 3760	Health Communication	3
COMM 3770	Modern Dating and Communication	3
COMM 3820	Persuasion Theory	3
COMM 3850	Research Methods in Everyday Life	3
COMM 3880	Professional Business Communication	3
COMM 4100	Multimedia Journalism (WAC)	4
COMM 4220	Advanced Television Production	4
COMM 4270	Special Event Planning	3
COMM 4330	Integrated Media	3
COMM 4500	Social Media Campaigns	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 and Communication (WAC)	3
COMM 4840	Advanced Interpersonal Communication	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, Interpersonal Communication Concentration, BA

Code	Title	Hours
REQUIRED COURSES for COMM MAJOR: 18 CREDITS Students must achieve a minimum grade of C- in each of these core courses.		
COMM 1010	Communication Principles And Practices	3
or COMM 2000	Media Communication and Society	
COMM 2130	Introduction to Media Writing	3
COMM 2500	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 3770	Modern Dating and Communication	3
COMM 3820	Persuasion Theory	3
COMM 4820	Family Communication (WAC)	3
or COMM 4830	Gender, Culture and Communication	
COMM 4840	Advanced Interpersonal Communication CAPSTONE	3
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	Introduction to Audio Production	3
COMM 2300	Photojournalism	3
COMM 2720	Introduction to Public Relations	3
COMM 2830	Organizational Communication	3
COMM 2890	Crisis & Conflict in Organizations	3
COMM 2990	Independent Study	1-4
COMM 3120	Advanced Media Writing	3
COMM 3150	Feature Writing	3
COMM 3210	Advanced Audio Production	3
COMM 3220	Multi-Camera Television Studio Production	3
COMM 3260	Live Sports Production	3
COMM 3270	Multimedia Newswriting (WAC)	3
COMM 3330	Public Relations and Principles of Advertising	3
COMM 3340	Visual Communication	3
COMM 3380	Media Producing and Performance	3
COMM 3500	Social Media Strategies	3
COMM 3710	Podcasting	3
COMM 3750	Cultural Diversity in Communication	3
COMM 3760	Health Communication	3
COMM 3850	Research Methods in Everyday Life	3
COMM 3880	Professional Business Communication	3
COMM 4090	Media Communication Ethics (WAC)	3
COMM 4100	Multimedia Journalism (WAC)	4
COMM 4220	Advanced Television Production	4
COMM 4270	Special Event Planning	3
COMM 4330	Integrated Media	3
COMM 4340	Advanced Visual Communication	3
COMM 4500	Social Media Campaigns	3
COMM 4630	Public Relations Campaigns	3
COMM 4640	Public Relations Case Studies (WAC)	3
COMM 4830	Gender, Culture and 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, 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	Communication Principles And Practices	3
or COMM 2000	Media Communication and Society	
COMM 2130	Introduction to Media Writing	3
COMM 2500	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: 16 credits		
COMM 2160	Single Camera Production	3
COMM 2210	Introduction to Audio Production	3
COMM 3220	Multi-Camera Television Studio Production	3
COMM 3380	Media Producing and Performance	3
COMM 4100	Multimedia Journalism (WAC) CAPSTONE	4
or COMM 4220	Advanced Television Production	
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 2300	Photojournalism	3
COMM 2720	Introduction to Public Relations	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	Advanced Media Writing	3
COMM 3150	Feature Writing	3
COMM 3210	Advanced Audio Production	3
COMM 3260	Live Sports Production	3
COMM 3270	Multimedia Newswriting (WAC)	3
COMM 3330	Public Relations and Principles of Advertising	3
COMM 3340	Visual Communication	3
COMM 3500	Social Media Strategies	3
COMM 3710	Podcasting	3
COMM 3750	Cultural Diversity in Communication	3
COMM 3760	Health Communication	3
COMM 3770	Modern Dating and Communication	3
COMM 3820	Persuasion Theory	3
COMM 3850	Research Methods in Everyday Life	3
COMM 3880	Professional Business Communication	3
COMM 4090	Media Communication Ethics (WAC)	3
COMM 4220	Advanced Television Production	4
COMM 4270	Special Event Planning	3
COMM 4340	Advanced Visual Communication	3
COMM 4330	Integrated Media	3
COMM 4500	Social Media Campaigns	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 and Communication (WAC)	3
COMM 4840	Advanced Interpersonal Communication	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 - 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	Communication Principles And Practices	3
or COMM 2000	Media Communication and Society	
COMM 2130	Introduction to Media Writing	3
COMM 2500	Introduction to Social Media	3
COMM 2600	Public Presentations	3
COMM 2840	Interpersonal Communication	3
COMM 2870	Communication Theory	3
REQUIRED COURSES FOR ORGANIZATIONAL AND STRATEGIC COMMUNICATION CONCENTRATION: 15 credits		
COMM 2720	Introduction to Public Relations	3
COMM 2830	Organizational Communication	3
or COMM 2890	Crisis & Conflict in Organizations	
COMM 3330	Public Relations and Principles of Advertising	3
COMM 3880	Professional Business Communication	3
COMM 4630	Public Relations Campaigns CAPSTONE	3
ELECTIVES COURSES FOR ORGANIZATIONAL AND STRATEGIC 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	Introduction to Audio Production	3
COMM 2300	Photojournalism	3
COMM 2820	Group Communication	3
COMM 2890	Crisis & Conflict in Organizations	3
COMM 2990	Independent Study	1-4
COMM 3120	Advanced Media Writing	3
COMM 3150	Feature Writing	3
COMM 3210	Advanced Audio Production	3
COMM 3220	Multi-Camera Television Studio Production	3
COMM 3260	Live Sports Production	3
COMM 3270	Multimedia Newswriting (WAC)	3
COMM 3340	Visual Communication	3
COMM 3380	Media Producing and Performance	3
COMM 3500	Social Media Strategies	3
COMM 3710	Podcasting	3
COMM 3750	Cultural Diversity in Communication	3
COMM 3760	Health Communication	3
COMM 3770	Modern Dating and Communication	3
COMM 3820	Persuasion Theory	3
COMM 3850	Research Methods in Everyday Life	3

COMM 4090	Media Communication Ethics (WAC)	3
COMM 4100	Multimedia Journalism (WAC)	4
COMM 4220	Advanced Television Production	4
COMM 4270	Special Event Planning	3
COMM 4330	Integrated Media	3
COMM 4340	Advanced Visual Communication	3
COMM 4500	Social Media Campaigns	3
COMM 4640	Public Relations Case Studies (WAC)	3
COMM 4820	Family Communication (WAC)	3
COMM 4830	Gender, Culture and Communication (WAC)	3
COMM 4840	Advanced Interpersonal Communication	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

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- Communication Studies, Interpersonal Communication Concentration, BA (p. 412)
- Communication, Media Communication Concentration, BA (p. 412)
- Communication Studies - Organizational And Strategic Communication Concentration, BA (p. 413)

Communication Studies, Digital Communication Concentration, BA

First Term		Hours
AR 1000	First Year Orientation	1
COMM 1010 or COMM 2000	Communication Principles And Practices or Media Communication and Society	3
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
Elementary Foreign Language I		4
	Hours	**14**
Second Term		
COMM 2600	Public Presentations	3
COMM 2840	Interpersonal Communication	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
Natural Sciences Core		3
	Hours	**16**
Third Term		
COMM 2130	Introduction to Media Writing	3
COMM 2500	Introduction to Social Media	3
Social Sciences Core		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
Related or Minor course		3
	Hours	**16**
Fourth Term		
COMM 2150	Digital Design for Media Communication	3
COMM 2870	Communication Theory	3
Social Sciences Core		3
Humanities Core		3
Related or Minor course		3
	Hours	**15**
Fifth Term		
COMM 3340	Visual Communication	3
COMM 3500	Social Media Strategies	3
Humanities Core		3
US Diversity		3
Related or Minor Course		3
	Hours	**15**
Sixth Term		
COMM 4090	Media Communication Ethics	3
COMM Major Elective		3
Non-US Diversity		3
Social Sciences Elective		3
Related or Minor Course		3
	Hours	**15**
Seventh Term		
COMM 4340 or COMM 4500	Advanced Visual Communication or Social Media Campaigns CAPSTONE	3
COMM Major Elective		3
COMM Major Elective		3
Humanities Elective		3
Related or Minor Course		3
	Hours	**15**
Eighth Term		
COMM Major Elective		4
COMM Major Elective		4
Social Sciences/Humanities Elective		3
Related or Minor Course		3
	Hours	**14**
	Total Hours	**120**

Communication Studies, Interpersonal Communication Concentration, BA

First Term		Hours
AR 1000	First Year Orientation	1
COMM 1010 or COMM 2000	Communication Principles And Practices or Media Communication and Society	3
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
Elementary Foreign Language I		4
	Hours	**14**
Second Term		
COMM 2600	Public Presentations	3
COMM 2840	Interpersonal Communication	3

ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
Natural Sciences Core		3
	Hours	**16**
Third Term		
COMM 2130	Introduction to Media Writing	3
COMM 2500	Introduction to Social Media	3
Social Sciences Core		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
Related or Minor course		3
	Hours	**16**
Fourth Term		
COMM 2820	Group Communication	3
COMM 2870	Communication Theory	3
Social Sciences Core		3
Humanities Core		3
Related or Minor course		3
	Hours	**15**
Fifth Term		
COMM 3770	Modern Dating and Communication	3
COMM 3820	Persuasion Theory	3
Humanities Core		3
US Diversity		3
Related or Minor course		3
	Hours	**15**
Sixth Term		
COMM 4820 or COMM 4830	Family Communication (WAC) or Gender, Culture and Communication	3
COMM Major Elective		3
Non-US Diversity		3
Social Sciences Elective		3
Related or Minor course		3
	Hours	**15**
Seventh Term		
COMM 4840	Advanced Interpersonal Communication CAPSTONE	3
COMM Major Elective		3
COMM Major Elective		3
Humanities Elective		3
Related or Minor course		3
	Hours	**15**
Eighth Term		
COMM Major Elective		4
COMM Major Elective		4
Social Science/Humanities Elective		3
Related or Minor course		3
	Hours	**14**
	Total Hours	**120**

Communication, Media Communication Concentration, BA

First Term		**Hours**
AR 1000	First Year Orientation	1
COMM 1010 or COMM 2000	Communication Principles And Practices or Media Communication and Society	3
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
Elementary Foreign Language I		4
	Hours	**14**
Second Term		
COMM 2130	Introduction to Media Writing	3
COMM 2500	Introduction to Social Media	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
Natural Sciences Core		3
	Hours	**16**
Third Term		
COMM 2160	Single Camera Production	3
COMM 2210	Introduction to Audio Production	3
Social Sciences Core		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
Related or Minor course		3
	Hours	**16**
Fourth Term		
COMM 2600	Public Presentations	3
COMM 3220	Multi-Camera Television Studio Production	3
Social Sciences Core		3
Humanities Core		3
Non-US Diversity		3
	Hours	**15**
Fifth Term		
COMM 2840	Interpersonal Communication	3
COMM 2870	Communication Theory	3
Humanities Core		3
US Diversity		3
Related or Minor course		3
	Hours	**15**
Sixth Term		
COMM 3380	Media Producing and Performance	3
COMM Major Elective		3
Non-US Diversity		3
Social Science Elective		3

Related or Minor course		3
	Hours	**15**
Seventh Term		
COMM 4100 or COMM 4220	Multimedia Journalism (WAC) or Advanced Television Production	4
COMM Major Elective		3
COMM Major Elective		3
Humanities Elective		3
Related or Minor course		3
	Hours	**16**
Eighth Term		
COMM Major Elective		3
COMM Major Elective		4
Social Sciences/Humanities Elective		3
Related or Minor Course		3
	Hours	**13**
	Total Hours	**120**

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 or COMM 2000	Communication Principles And Practices or Media Communication and Society	3
Elementary Foreign Language I		4
	Hours	**14**
Second Term		
COMM 2600	Public Presentations	3
COMM 2840	Interpersonal Communication	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
Natural Sciences Core		3
	Hours	**16**
Third Term		
COMM 2130	Introduction to Media Writing	3
COMM 2500	Introduction to Social Media	3
Social Sciences Core		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
Related or Minor course		3
	Hours	**16**
Fourth Term		
COMM 2870	Communication Theory	3
COMM 2830 or COMM 2890	Organizational Communication or Crisis & Conflict in Organizations	3
Social Sciences Core		3
Humanities Core		3
Related or Minor course		3
	Hours	**15**
Fifth Term		
COMM 2720	Introduction to Public Relations	3
COMM 3880	Professional Business Communication	3
Humanities Core		3
Diversity of US		3
Related or Minor Course		3
	Hours	**15**
Sixth Term		
COMM 3330	Public Relations and Principles of Advertising	3
COMM Major Elective		3
Non-US Diversity		3
Social Sciences Elective		3
Related or Minor Course		3
	Hours	**15**
Seventh Term		
COMM 4630	Public Relations Campaigns CAPSTONE	3
COMM Major Elective		3
COMM Major Elective		3
Humanities Elective		3
Related or Minor Course		3
	Hours	**15**
Eighth Term		
COMM Major Elective		4
COMM Major Elective		4
Social Sciences/Humanities Elective		3
Related or Minor Course		3
	Hours	**14**
	Total Hours	**120**

Communication, Digital Communication Concentration, BA

- Foundational skills: Produce clear, concise, and compelling written and oral content for different audiences and purposes, from formal reports to digital media, with an emphasis on effectively conveying ideas and adapting messages to various settings.
- Theoretical skills: Identify, apply, and analyze major communication theories to better understand and predict human interaction and critically evaluate messages across various media to understand their meaning, influence, and ethical implications.
- Applied skills: Create and execute communication plans that achieve specific goals, applying ethical principles to communication practices in both personal and professional.
- Professional competencies: Demonstrate communication skills expected of a future professional to conceptualize, design, and create deliverables tailored to an intended career or area of specialty.
- Digital Communication Concentration: Design, produce and present a complete digital communication campaign for a client or

organization; applying relevant theory, industry best practices, ethical and legal considerations, and data analytics.

Communication, Interpersonal Communication Concentration, BA

- Foundational skills: Produce clear, concise, and compelling written and oral content for different audiences and purposes, from formal reports to digital media, with an emphasis on effectively conveying ideas and adapting messages to various settings.
- Theoretical skills: Identify, apply, and analyze major communication theories to better understand and predict human interaction and critically evaluate messages across various media to understand their meaning, influence, and ethical implications.
- Applied skills: Create and execute communication plans that achieve specific goals, applying ethical principles to communication practices in both personal and professional.
- Professional competencies: Demonstrate communication skills expected of a future professional to conceptualize, design, and create deliverables tailored to an intended career or area of specialty.
- Interpersonal Communication Concentration: Synthesize and apply interpersonal communication theories to address real-world relationship challenges and strategically improve communicative competence in diverse personal and professional settings.

Communication, Organizational And Strategic Communication Concentration, BA

- Foundational skills: Produce clear, concise, and compelling written and oral content for different audiences and purposes, from formal reports to digital media, with an emphasis on effectively conveying ideas and adapting messages to various settings.
- Theoretical skills: Identify, apply, and analyze major communication theories to better understand and predict human interaction and critically evaluate messages across various media to understand their meaning, influence, and ethical implications.
- Applied skills: Create and execute communication plans that achieve specific goals, applying ethical principles to communication practices in both personal and professional.
- Professional competencies: Demonstrate communication skills expected of a future professional to conceptualize, design, and create deliverables tailored to an intended career or area of specialty.
- Organizational and Strategic Communication: Design, produce and present a complete strategic communication campaign for a client or organization; applying relevant theory, industry best practices, ethical and legal considerations, and data analytics.

Communication, Media Communication Concentration, BA

- Foundational skills: Produce clear, concise, and compelling written and oral content for different audiences and purposes, from formal reports to digital media, with an emphasis on effectively conveying ideas and adapting messages to various settings.
- Theoretical skills: Identify, apply, and analyze major communication theories to better understand and predict human interaction and critically evaluate messages across various media to understand their meaning, influence, and ethical implications.
- Applied skills: Create and execute communication plans that achieve specific goals, applying ethical principles to communication practices in both personal and professional.
- Professional competencies: Demonstrate communication skills expected of a future professional to conceptualize, design, and create deliverables tailored to an intended career or area of specialty.
- Media Communication Concentration: Produce a professionally executed and critically reflective media project that addresses a specific audience and demonstrates a comprehensive understanding of media theory, ethics, and production.

General Communication Minor

Code	Title	Hours
Required Courses		
COMM 2000	Media Communication and Society	3
or COMM 1010	Communication Principles And Practices	
Choose one course from the following		**3**
COMM 2130	Introduction to Media Writing	
COMM 2500	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.

Audio Production Communication Certificate

Code	Title	Hours
COMM 2210	Introduction to Audio Production	3
COMM 3210	Advanced Audio Production	3
COMM 3710	Podcasting	3
Total Hours		**9**

- Foundational skills: Produce clear, concise, and compelling written and oral content for different audiences and purposes, from formal reports to digital media, with an emphasis on effectively conveying ideas and adapting messages to various settings.
- Theoretical skills: Identify, apply, and analyze major communication theories to better understand and predict human interaction and critically evaluate messages across various media to understand their meaning, influence, and ethical implications.

- Applied skills: Create and execute communication plans that achieve specific goals, applying ethical principles to communication practices in both personal and professional.
- Professional competencies: Demonstrate communication skills expected of a future professional to conceptualize, design, and create deliverables tailored to an intended career or area of specialty.
- Produce a professionally executed and critically reflective media project that addresses a specific audience and demonstrates a comprehensive understanding of media theory, ethics, and production.

Health Communication Certificate

Code	Title	Hours
COMM 2840	Interpersonal Communication	3
COMM 3760	Health Communication	3
PHIL 3370	Medical Ethics	3
or HEAL 3200	Consumer Health	
Total Hours		**9**

- Foundational skills: Produce clear, concise, and compelling written and oral content for different audiences and purposes, from formal reports to digital media, with an emphasis on effectively conveying ideas and adapting messages to various settings.
- Theoretical skills: Identify, apply, and analyze major communication theories to better understand and predict human interaction and critically evaluate messages across various media to understand their meaning, influence, and ethical implications.
- Applied skills: Create and execute communication plans that achieve specific goals, applying ethical principles to communication practices in both personal and professional.
- Professional competencies: Demonstrate communication skills expected of a future professional to conceptualize, design, and create deliverables tailored to an intended career or area of specialty.

Journalism Communication Certificate

Code	Title	Hours
COMM 2120	Reporting	3
COMM 3120	Advanced Media Writing	3
COMM 3270	Multimedia Newswriting	3
Total Hours		**9**

- Foundational skills: Produce clear, concise, and compelling written and oral content for different audiences and purposes, from formal reports to digital media, with an emphasis on effectively conveying ideas and adapting messages to various settings.
- Theoretical skills: Identify, apply, and analyze major communication theories to better understand and predict human interaction and critically evaluate messages across various media to understand their meaning, influence, and ethical implications.
- Applied skills: Create and execute communication plans that achieve specific goals, applying ethical principles to communication practices in both personal and professional.
- Professional competencies: Demonstrate communication skills expected of a future professional to conceptualize, design, and create deliverables tailored to an intended career or area of specialty.

Media Production Communication Certificate

Code	Title	Hours
COMM 2160	Single Camera Production	3
COMM 3220	Multi-Camera Television Studio Production	3
COMM 3380	Media Producing and Performance	3
Total Hours		**9**

- Foundational skills: Produce clear, concise, and compelling written and oral content for different audiences and purposes, from formal reports to digital media, with an emphasis on effectively conveying ideas and adapting messages to various settings.
- Theoretical skills: Identify, apply, and analyze major communication theories to better understand and predict human interaction and critically evaluate messages across various media to understand their meaning, influence, and ethical implications.
- Applied skills: Create and execute communication plans that achieve specific goals, applying ethical principles to communication practices in both personal and professional.
- Professional competencies: Demonstrate communication skills expected of a future professional to conceptualize, design, and create deliverables tailored to an intended career or area of specialty.
- Produce a professionally executed and critically reflective media project that addresses a specific audience and demonstrates a comprehensive understanding of media theory, ethics, and production.

Organizational Communication Certificate

Code	Title	Hours
COMM 2830	Organizational Communication	3
COMM 2890	Crisis & Conflict in Organizations	3
COMM 3880	Professional Business Communication	3
Total Hours		**9**

- Foundational skills: Produce clear, concise, and compelling written and oral content for different audiences and purposes, from formal reports to digital media, with an emphasis on effectively conveying ideas and adapting messages to various settings.
- Theoretical skills: Identify, apply, and analyze major communication theories to better understand and predict human interaction and critically evaluate messages across various media to understand their meaning, influence, and ethical implications.
- Applied skills: Create and execute communication plans that achieve specific goals, applying ethical principles to communication practices in both personal and professional.

- Professional competencies: Demonstrate communication skills expected of a future professional to conceptualize, design, and create deliverables tailored to an intended career or area of specialty.

Public Relations Communication Certificate

Code	Title	Hours
COMM 2720	Introduction to Public Relations	3
COMM 3330	Public Relations and Principles of Advertising	3
COMM 4630	Public Relations Campaigns	3
Total Hours		**9**

- Foundational skills: Produce clear, concise, and compelling written and oral content for different audiences and purposes, from formal reports to digital media, with an emphasis on effectively conveying ideas and adapting messages to various settings.
- Theoretical skills: Identify, apply, and analyze major communication theories to better understand and predict human interaction and critically evaluate messages across various media to understand their meaning, influence, and ethical implications.
- Applied skills: Create and execute communication plans that achieve specific goals, applying ethical principles to communication practices in both personal and professional.
- Professional competencies: Demonstrate communication skills expected of a future professional to conceptualize, design, and create deliverables tailored to an intended career or area of specialty.
- Design, produce and present a complete strategic communication campaign for a client or organization; applying relevant theory, industry best practices, ethical and legal considerations, and data analytics.

Social Media Communication Certificate

Code	Title	Hours
COMM 2500	Introduction to Social Media	3
COMM 3500	Social Media Strategies	3
COMM 4500	Social Media Campaigns	3

- Foundational skills: Produce clear, concise, and compelling written and oral content for different audiences and purposes, from formal reports to digital media, with an emphasis on effectively conveying ideas and adapting messages to various settings.
- Theoretical skills: Identify, apply, and analyze major communication theories to better understand and predict human interaction and critically evaluate messages across various media to understand their meaning, influence, and ethical implications.
- Applied skills: Create and execute communication plans that achieve specific goals, applying ethical principles to communication practices in both personal and professional.
- Professional competencies: Demonstrate communication skills expected of a future professional to conceptualize, design, and create deliverables tailored to an intended career or area of specialty.
- Digital Communication Concentration: Design, produce and present a complete digital communication campaign for a client or organization; applying relevant theory, industry best practices, ethical and legal considerations, and data analytics.

Criminal Justice Program

Patrick Lawrence, Chair
Program Coordinator, Wendi Goodlin-Fahncke

- BS in Criminal Justice (p. 421)
- Minor in Criminal Justice (p. 422)
- Minor in Forensic Science Investigation (p. 423)

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.
Term Offered: Spring, Summer, Fall

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

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	Corrections	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 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 or CMPT 1100	Micro-Computer Applications In Business or Microsoft Office Applications	3
CRIM 1010	Criminal Justice [1]	3
CRIM 1040	Human Relations and Diversity in Criminal Justice [1]	3
HHS 1000	Health And Human Services/College Orientation	1
ENGL 1110	College Composition I	3
SOC 1010	Introduction To Sociology	3
	Hours	**16**

Second Term		
CRIM 1110	Corrections [1]	3
CRIM 1240	Policing [1]	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3
Diversity of US		3
	Hours	**15**
Third Term		
CRIM 2200	Criminal Law [1]	3
CRIM 2230	Criminal Procedure [1]	3
Arts/Humanities Core		3
Natural Sciences Core		3
Core Elective (2000-level)		3
	Hours	**15**
Fourth Term		
CRIM 2050	Applied Criminology [1]	3
CRIM 2250	Juvenile Justice [1]	3
PSC 1200 or PSC 1210	American National Government or American National Government and Civics	3
Natural Sciences Core		3
Natural Sciences Core Laboratory		1
Elective (2000-level)		3
	Hours	**16**
Fifth Term		
PSY 1010	Principles Of Psychology	3
Criminal Justice Elective (Upper-level) [1]		3
Arts/Humanities Core		3
Non-US Diversity		3
Core Elective		3
	Hours	**15**
Sixth Term		
CRIM 3210	Applied Psychology for Criminal Justice Personnel [1]	3
CRIM 4100	Criminal Justice Research Methods [1]	3
Criminal Justice Elective (Upper-level) [1]		3
Elective (2000-level)		6
	Hours	**15**
Seventh Term		
CRIM 4200	Ethics In Criminal Justice [1]	3
CRIM 4590	Administration Of Criminal Justice [1]	3
Elective (2000-level)		6
Criminal Justice Elective (Upper-level) [1]		3
	Hours	**15**
Eighth Term		
Criminal Justice Elective (Upper-level) [1]		3
Criminal Justice Elective (Upper-level) [1]		3
Elective		4
Criminal Justice Elective (Upper-level) [1]		3
	Hours	**13**
	Total Hours	**120**

[1] 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).

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
Required		
CRIM 1010	Criminal Justice	3
CRIM 1110	Corrections	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		6
CRIM 3110	Hate Crimes	
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
Total Hours	**21**

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
Required [1]		
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
Total Hours		**23**

[1] Students will be responsible for meeting all of the prerequisites and co-requisites for the required courses in the minor.

Department of Economics

Onur Sapci, Undergraduate 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. 427)
- Advanced Economics Certificate (p. 431)
- Advanced Quantitative Economics Certificate (p. 432)
- Environmental Economics Certificate (p. 432)
- Public Economics Certificate (p. 432)
- Minor in Economics (p. 433)
- Minor in Environmental Economics (p. 433)
- Minor in Public Economics (p. 433)

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 2000 Economics Proseminar
[1 credit hour]
Students are introduced to the academic and professional nature of the economics major. Topics covered include professional socialization, honors, portfolio construction, preparation for graduate studies, and career development.
Term Offered: Spring, Fall

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 3060 Economics of Education
[3 credit hours]
Explore the economics of the education industry in this non-technical, Writing Across the Curriculum (WAC) class. Investigate the funding models in K-12 and higher education, the relationship between funding and outcomes, and the job market for educators.
Term Offered: Spring

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 enironmental 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 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, Fall
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 mirco-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 forcasting, 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, Summer, Fall

ECON 3980 Current Economic Issues
[3 credit hours]
Course content varies as changes in the interaction between economic topics and writing assignments occur.
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, Fall

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: Spring, Fall

ECON 4410 American Economic History
[3 credit hours]
Exploration of economic growth in America from pre-Columbian times to the present day. Analysis of economic institutions, technological change, industrialization and standards of living.
Prerequisites: ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

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, Fall

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. 427)
- Economics -Concentration In Data Analytics In Economics, BA (p. 428)
- Economics- Concentration In Environmental Economics, BA (p. 428)

B.A. IN ECONOMICS

The requirement of 30 hours in economics must include, from among the following, 17 hours of core courses and 13 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
Core Courses		
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
ECON 4940	Economics Internship	1-4
ECON 2000	Economics Proseminar	1
Economics Electives		
Select 13 hours, chosen in consultation with the Economics Advisor		13
MATH 1850	Single Variable Calculus I (or equivalent) [1]	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	

or SOC 3290	Social Statistics	
Total Hours		**37-41**

[1] 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.

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 8 of those hours as an undergraduate student have to complete only 22 additional credit hours as a graduate student to receive their master's degree.

Undergraduate students with a declared major or minor 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.

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
Core Courses		
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
Electives		
Select 3 hours, chosen in consultation with the Economics Advisor		3
Optional Concentration in Data Analytics in Economics		
To earn the concentration in data analytics in economics, students must complete 12 credits from the following elective courses as part of their major:		12
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 [1]		
MATH 1850	Single Variable Calculus I (or equivalent)	
or MATH 173	Calculus with Applications to Business and Finance	
MATH 2600	Introduction To Statistics (or equivalent)	
or BUAD 2060	Business Statistics	
Total Hours		**30**

[1] 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
Core Courses		
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
Elective		

Select 3 hours, chosen in consultation with the Economics Advisor.		3
Optional Concentration in Environmental Economics		
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.)	
Related Courses [1]		
MATH 1850	Single Variable Calculus I (or equivalent)	
or MATH 173	Calculus with Applications to Business and Finance	
MATH 2600	Introduction To Statistics (or equivalent)	
or BUAD 2060	Business Statistics	
Total Hours		**30**

[1] 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. 427)
- Economics -Concentration In Data Analytics In Economics, BA (p. 428)
- 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 [1]	5
Elementary Foreign Language I		4
	Hours	**16**
Second Term		
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	
SOC 3290	Social Statistics	
HIST 1010-HIST 1200 Arts/Humanities Core (History)		3
	Hours	**16**
Third Term		
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 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
	Hours	**15**
Sixth Term		
ECON Major Elective 3000-4000 level		3
Diversity of US		3
Related or minor course (WAC)		3
Related or minor course		6
	Hours	**15**
Seventh Term		
ECON Major Elective 3000-4000 level		3
Related course		3
Elective		9
	Hours	**15**
Eighth Term		
ECON Major Elective 3000-4000 level		3
Elective		9
	Hours	**12**
	Total Hours	**120**

[1] 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
	Hours	**16**
Second Term		
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
	Hours	**16**
Third Term		
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		
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
	Hours	**13**
Sixth Term		
ECON 3810	Applied Econometrics	3
Diversity of US		3
Related or minor course (WAC)		3
Related or minor course		6
	Hours	**15**
Seventh Term		
ECON 4810	Econometrics Models And Methods I	3
Related course		3
Elective		9
	Hours	**15**
Eighth Term		
ECON 4820	Econometrics Models And Methods II	3
DANN 4000	Proseminar in Data Analytics II	2
Elective		9
	Hours	**14**
	Total Hours	**120**

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
	Hours	**16**
Second Term		
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
	Hours	**16**
Third Term		
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 or ECON 3270	Environmental Economics 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 or ECON 5240	Applied Environmental Economics or Applied Environmental Economics	3
Related course		3
Elective		9
	Hours	**15**
Eighth Term		
ECON 4280 or ECON 5280	Energy Economics or Energy Economics	3
Elective		9
	Hours	**12**
	Total Hours	**120**

- 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 model and its implications using graphical and quantitative tools. Students will demonstrate the ability to analyze economic data.
- 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.

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 5510	International Economics I	
ECON 4550	Economic Development	

- PLO I. 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:		6
ECON 4300	Mathematical Economics	
or ECON 530	Mathematical Economics	
ECON 4810	Econometrics Models And Methods I	
or ECON 5810	Econometrics Models And Methods I	
ECON 4820	Econometrics Models And Methods II	
or ECON 582	Econometrics Models And Methods II	
Select one elective ECON course from the following; all include data analysis applications:		3
ECON 4050	Population Economics	
or ECON 505	Population Economics	
ECON 4750	Health Economics	
or ECON 5750	Health Economics	
ECON 4250	Labor Economics	
or ECON 525	Labor Economics	
ECON 4260	Behavioral Economics	
or ECON 6260	Behavioral Economics	
Total Hours		**9**

- 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.
- IPLO 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.
- 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):		6
ECON 3240	Environmental Economics	
or ECON 327	Natural Resource Economics - WAC	
ECON 3300	BENEFIT-COST ANALYSIS (WAC)	
Select one of the following:		3
ECON 4280	Energy Economics	
ECON 4240	Applied Environmental Economics	
Total Hours		**9**

- 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:		3
ECON 3050	Economics Of Gender	
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	
Total Hours		**9**

- 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
Required Courses		
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		
Minor Electives		
Select an additional nine hours from course work in economics at the 3000 to 4000 levels, chosen in consultation with the undergraduate advisor [1]		9
Total Hours		**18**

[1] 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 4240	Applied Environmental Economics	
ECON 3200	Intermediate Micro-Economic Theory	
ECON 2810	Introduction to Econometrics	
ECON 4660	Public Finance Economics	
PSC 4340	Environmental Policy	
Total Hours		**18**

- 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	
Total Hours		**18**

- 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 Educational Studies

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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.

Accreditation

The Education programs in the Judith Herb College of Arts, Social Sciences, and Education are 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.

Undergraduate Certificate

Certificate in Child and Youth Work in Global Settings (p. 436)

- 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. 436)

- 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: Spring, 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

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-

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 Arts, Social Sciences and 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
Total Hours		**12**

- 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 though 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
Core Courses		
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
Elective Courses		
Select six credits [1]		6
Total Hours		**18**

[1] Electives are available in disciplines and programs across campus including: art, communications, disability studies, economics, environmental studies, foundations of education, legal specialies, philosophy, religious studies, sociology/anthropology, and womans & gender studies.

Department of English Language and Literature

Andrew Mattison, Chair

Christina Fitzgerald, Associate Chair

Ben Stroud, Advisor

Ayendy Bonifacio, Honors Advisor

Anthony Edgington, Director of Composition

Joey S. Kim, Graduate Advisor

Melinda Reichelt, Director of ESL Writing

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Advanced Placement Program
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Refer to the University of Toledo's Registrar page at 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. 442)
- Minor in English (p. 445)

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. The awarding of honors will be determined by the English Honors advisor and the thesis director. 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 ides 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 Skls 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 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

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

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 3030 Careers for English Majors: Designing Your Life
[3 credit hours]
This course helps students chart a life- and career-path by leveraging the foundational tools of writing and literary study to imagine, analyze, and craft a life.
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 Gutenburg 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 Americanliterature, 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 3630 American Literature, Beginnings to 1865
[3 credit hours]
Study of the writing of colonial North America and the United States before 1865, in literary and historical contexts. 3 credits.
Term Offered: Spring, Fall

ENGL 3640 American Literature 1865 to the Present
[3 credit hours]
Study of the writing of the United States after 1865, in literary and historical contexts. 3 credits.
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 Latino Literature in the U.S.
[3 credit hours]
Introduction to Latino writers, literatures, and cultures in the United States from the 1960s to the present moment.
Term Offered: Spring, Fall

ENGL 3670 Literature of Marginalized Communities
[3 credit hours]
This course provides an overview of the U.S.'s literary and cultural heritage by examining recent works by authors of various cultural backgrounds. By engaging with poetry, fiction, and essays, students will strengthen foundational literacy skills—reading comprehension, vocabulary, and evidence-based writing—while analyzing how literature reflects themes such as community, youth, and labor. Students will also situate these texts in their historical and civic contexts, gaining insight into how literature contributes to broader understandings of American society, history, and government.
Term Offered: Spring, Fall

ENGL 3680 British Literature from the Middle Ages to 1789
[3 credit hours]
Study of the writing of the British isles before 1789, in literary and historical contexts. 3 credits.
Term Offered: Spring, Fall

ENGL 3690 British Literature from 1789 to the Present
[3 credit hours]
Study of the writing of the British isles after 1789, in literary and historical contexts. 3 credits.
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 form 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 Shakesepare'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 4110 Old English
[3 credit hours]
A study of phonology, morphology and syntax with representative readings in verse and prose.
Term Offered: Spring, Fall

ENGL 4190 Sociolinguistics
[3 credit hours]
Combines linguistic and societal concerns through reading of empirical research; includes issues of language variation and related larger constructs such as speech community, communicative competence, dialect, and language change.
Term Offered: Spring, 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 4340 Modern and Contemporary Drama
[3 credit hours]
Drama in English or translation from the late nineteenth century to the present.
Term Offered: Spring, Fall

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 Latino Literature
[3 credit hours]
This course examines the cultural production of Latino peoples in the nineteenth century U.S., the social and cultural impact of colonization in the Southwestern part of the U.S and the Atlantic world, identity formation among Hispanophone Black, Indigenous, and people of color (BIPOC), and what Latinidad looked like in the nineteenth century.
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 Writing Before The 20th Century
[3 credit hours]
Study of African American prose, poetry, drama and fiction from 1760 to 1915.
Term Offered: Spring, Fall

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
[3 credit hours]
The Honors Seminar is taken in conjunction with the Honors Thesis (ENGL 4960). Required of all candidates for departmental Honors.
Corequisites: ENGL 4960
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
[3 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: 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
Creative Writing Concentration Course List		
English Major Core		
Introduction to critical practice. Select one:		3
ENGL 3360	Introduction to Poetry and Poetics	3
ENGL 3600	American Literary Traditions	3
ENGL 3610	British Literary Traditions	3
ENGL 3790	Foundations Of Literary Study	3
Literature excluded from the traditional canon. Select one:		3
ENGL 3660	Latino Literature in the U.S.	3
ENGL 3670	Literature of Marginalized Communities	3
ENGL 3770	World Literature And Cultures	3
ENGL 3850	LGBTQ Literature	3
Two courses in literature after 1800:		6
ENGL 4280	American Fiction: 20th and 21st Century	3
ENGL 4500	British Literature: The Romantic Period	3
ENGL 4520	British Literature: The Victorian Period	3
ENGL 4540	British Literature: The 20th and 21st Centuries	3
ENGL 4560	Literature of the British Empire 1850 to the Present	3
ENGL 4640	Early 20th Century American Poetry	3
ENGL 4610	Nineteenth-Century Latino Literature	3
ENGL 4620	American Romanticism	3
ENGL 4630	American Literary Realism	3
ENGL 4640	Early 20th Century American Poetry	3
ENGL 4650	African American Writing Before The 20th Century	3
ENGL 4660	African American Literature In The 20th and 21st Century	3
ENGL 4670	Asian American Literature	3
ENGL 4680	American Literature Since World War II	3
ENGL 4690	Native American Literature And Culture	3
One course in a single author:		3
ENGL 3810	Shakespeare I	3
ENGL 4800	Chaucer	3
ENGL 4810	Shakespeare II	3
ENGL 4820	Milton	3
ENGL 4850	Studies In The Work Of A British Author	3

ENGL 4860	Studies In The Work Of An American Author	3
Creative Writing Concentration		
ENGL 3010	Creative Writing	3
One course in literature before 1800:		3
ENGL 3810	Shakespeare I	3
ENGL 4110	Old English	3
ENGL 4300	Medieval and Early Tudor Drama	3
ENGL 4310	British Drama To 1642	3
ENGL 4400	British Literature: The Medieval Period	3
ENGL 4420	Renaissance Literature	3
ENGL 4440	Early 17th Century English Literature	3
ENGL 4460	British Literature: Restoration And 18th Century	3
ENGL 4550	Literature of the British Empire, Beginnings to 1850	3
ENGL 4600	Early American Literature	3
ENGL 4800	Chaucer	3
ENGL 4810	Shakespeare II	3
ENGL 4820	Milton	3
Two creative writing workshops (which may be repeated)		6
ENGL 4070	Writing Workshop In Poetry	3
ENGL 4080	Writing Workshop In Fiction	3
ENGL 4030	Writing Workshop In Nonfictional Prose	3
Additional creative writing workshop or creative writing elective		3
Creative writing elective		3
ENGL 3020	The Writing Career: Readings and Professionalization	3
ENGL 4950	Special Topics For Writers	3
ENGL 3080	The Art And Process Of The Book	3
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 [1]		18

Code	Title	Hours
Literature Concentration Course List		
English Major Core		
Introduction to critical practice. Select one:		3
ENGL 3360	Introduction to Poetry and Poetics	3
ENGL 3600	American Literary Traditions	3
ENGL 3610	British Literary Traditions	3
ENGL 3790	Foundations Of Literary Study	3
Literature excluded from the traditional canon--3000-level. Select one:		3
ENGL 3660	Latino Literature in the U.S.	3
ENGL 3670	Literature of Marginalized Communities	3
ENGL 3770	World Literature And Cultures	3
ENGL 3850	LGBTQ Literature	3
Two courses in literature after 1800:		6
ENGL 4280	American Fiction: 20th and 21st Century	3
ENGL 4500	British Literature: The Romantic Period	3
ENGL 4520	British Literature: The Victorian Period	3
ENGL 4540	British Literature: The 20th and 21st Centuries	3
ENGL 4560	Literature of the British Empire 1850 to the Present	3
ENGL 4610	Nineteenth-Century Latino Literature	3
ENGL 4620	American Romanticism	3
ENGL 4630	American Literary Realism	3
ENGL 4640	Early 20th Century American Poetry	3
ENGL 4650	African American Writing Before The 20th Century	3
ENGL 4660	African American Literature In The 20th and 21st Century	3
ENGL 4670	Asian American Literature	3
ENGL 4680	American Literature Since World War II	3
ENGL 4690	Native American Literature And Culture	3
One course in a single author:		3
ENGL 3810	Shakespeare I	3
ENGL 4800	Chaucer	3
ENGL 4810	Shakespeare II	3
ENGL 4820	Milton	3
ENGL 4850	Studies In The Work Of A British Author	3
ENGL 4860	Studies In The Work Of An American Author	3
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	3
ENGL 4610	Nineteenth-Century Latino Literature	3
ENGL 4650	African American Writing 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
Two courses in literature before 1800:		
ENGL 3810	Shakespeare I	3
ENGL 4110	Old English	3
ENGL 4300	Medieval and Early Tudor Drama	3
ENGL 4310	British Drama To 1642	3
ENGL 4400	British Literature: The Medieval Period	3
ENGL 4420	Renaissance Literature	3
ENGL 4440	Early 17th Century English Literature	3
ENGL 4460	British Literature: Restoration And 18th Century	3
ENGL 4550	Literature of the British Empire, Beginnings to 1850	3
ENGL 4600	Early American Literature	3
ENGL 4800	Chaucer	3
ENGL 4810	Shakespeare II	3
ENGL 4820	Milton	3
Four ENGL electives		**12**
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 [1]		18

[1] 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. 444)
- 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
	Hours	**17**
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
	Hours	**16**
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
	Hours	**15**
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
	Hours	**16**
Fifth Term		
One course from literature before 1800 category [1]		3
One single-author course [1]		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
	Hours	**15**
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
	Hours	**15**
Seventh Term		
Creative Writing elective		3
English elective		3
Related or Minor course 3000-4000 level		3
Elective		1
Elective		3
	Hours	**13**
Eighth Term		
One course from literature after 1800 category		3
ENGL Creative Writing workshop or elective		3
Related or Minor course 3000-4000		3
Elective		1
Elective		3
	Hours	**13**
	Total Hours	**120**

[1] 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
	Hours	**17**
Second Term		
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
	Hours	**16**

Third Term	
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
Hours	**15**
Fourth Term	
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
Hours	**16**
Fifth Term	
One course from literature before 1800 category [1]	3
One single-author course [1]	3
Related or Minor course	3
Related or Minor course	3
Elective	3
Hours	**15**
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
Hours	**15**
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
Hours	**13**
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
Hours	**13**
Total Hours	**120**

[1] ENGL 3810 is recommended for either of these two requirements, but may not count for both requirements.

- Ask complex, discerning questions that help us better understand how literature and culture have shaped, and continue to shape, the world around us.
- Construct nuanced, persuasive, evidence-based arguments about literature and culture that engage with prior arguments from existing literary criticism.
- Conduct research on pressing questions regarding the meaning, value, and impact of literature and culture on our world.
- Explore and appreciate, with empathy, a broad range of perspectives and lived experiences that students would not otherwise encounter.
- Make compelling, creative, meaningful works, both literary and scholarly, of substance, value, and quality, with an emphasis on creative writing.
- Apply the skills of literary creation and criticism to other forms of communication.

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
Total Hours		**18**

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 (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 and Planning (p. 449)
- B.S. in Geospatial Science (p. 455)
- Geographic Information Science and Technology Certificate (p. 456)
- Urban and Regional Planning Certificate (p. 456)
- Minor in Geographic Information Science and Technology (p. 456)
- Minor in Human and Environmental Geography (p. 457)
- Minor in Urban and Regional Planning (p. 457)

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 2020 Introduction to Geospatial Science
[3 credit hours]
Introduction to the basic concepts, definitions, theories, methods, and tools of geospatial science and technology (GIS&T). Topics include geographic information systems (GIS), remote sensing (RS), Global positioning systems (GPS), geo-visualization, and spatial statistics.
Term Offered: Fall

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, Fall
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 mega-cities 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 4300 GIS Programming
[3 credit hours]
Introduction to computer programming languages that can customize and expand the capability of geospatial science and technology (GIS&T). Major topics include programming fundamentals, Python, ArcPy, Jupyter, and their applications.
Prerequisites: GEPL 2020 with a minimum grade of D- and GEPL 4110 with a minimum grade of D-
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 4400 GeoAI and Machine Learning
[3 credit hours]
Introduction to the concepts, principles, methods, and tools of artificial intelligence (AI), machine learning (ML), and deep learning (DL) in the geosciences. As an advanced GIS&T programming course, this course exhibits wide applications and promising potentials of AI, ML, and DL in solving real-world problems.
Prerequisites: GEPL 4110 with a minimum grade of D- and GEPL 4300 with a minimum grade of D-
Term Offered: Fall

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 4520 Analytical And Computer Cartography
[3 credit hours]
The theoretical and mathematical foundations of the mapping process in a digital environment. An introduction to the structure and manipulation of graphic and nongraphic geographical data to produce maps.
Prerequisites: GEPL 4110 with a minimum grade of D- and GEPL 5110 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 explorer 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 4800 Geospatial Science Research
[3 credit hours]
A seminar/capstone course to guide students in integrating Geographic Information Science and Technology (GIS&T) knowledge, exploring research questions, conducting research projects, and composing journal-standard articles.
Prerequisites: GEPL 4110 with a minimum grade of D- and GEPL 4300 with a minimum grade of D- and GEPL 4400 with a minimum grade of D-
Term Offered: Spring

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 and Planning

- BA Geography and Planning with Concentration In Human And Environmental Geography (p. 449)
- BA Geography and Planning with Concentration In Geographic Information Science & Technology (GIS&T) (p. 450)
- BA Geography and Planning with a Concentration in (p. 450) Urban and Regional Planning
- BA Geography and Planning with a Concentration in Urban Studies

BA Geography and Planning with Concentration in Human and Environmental Geography

31 hours required:

Code	Title	Hours
Required Courses		
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	
Elective Hours [1]		*6*
Total Hours		**31**

[1] 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 and Planning with Concentration in Geographic Information Science & Technology (GIS&T)

31 hours required:

Code	Title	Hours
Required:		
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	
Elective		*3*
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 and Planning with Concentration in Urban and Regional Planning

31 hours required:

Code	Title	Hours
Required:		
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 and Planning with Concentration in Human and Environmental Geography (p. 451)
- Geography and Planning with Concentration in Geography Information Science & Technology (GIS&T) (p.)
- Geography and Planning with Concentration in Urban and Regional Planning (p. 453)
- BA Geography and Planning with a Concentration in Urban Studies (p. 454)

Geography and Planning 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
	Hours	**16**
Second Term		
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
	Hours	**16**
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
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 [1]		3
Related or Minor course		3
Related or Minor Course		3
Elective		5
	Hours	**14**
	Total Hours	**120**

[1] If no Writing Across the Curriculum (WAC) course has been taken in the major, one elective must be a WAC course.

Geography and planning with Concentration in Geography Information Science & Technology (GIS&T)

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 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
	Hours	**13**
Fourth Term		
GEPL 4110	Geographic Information Systems	3
Related or Minor course		3
Elementary Foreign Language II		4
Natural Sciences Core		3
Elective		2
	Hours	**15**
Fifth Term		
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
	Hours	**15**
Sixth Term		
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
	Hours	**15**
Seventh Term		
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
	Hours	**15**
Eighth Term		
GEPL 4500	Digital Image Analysis	3
Related or Minor course		3
GEPL Major Elective [1]		3
Elective		6
	Hours	**15**
	Total Hours	**120**

[1] If no Writing Across the Curriculum (WAC) course has been taken in the major, this elective must be a WAC course.

Geography and planning with Concentration in Urban and Regional Planning

First Term		**Hours**
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
	Hours	**16**
Second Term		
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
	Hours	**16**
Third Term		
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
	Hours	**16**
Fourth Term		
GEPL 4210	Land Use Planning	3
GEPL Major Elective		3
Social Sciences Core		3
Elementary Foreign Language II		4
Related or minor course		3
	Hours	**16**
Fifth Term		
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
	Hours	**15**
Sixth Term		
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
	Hours	**15**
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
	Hours	**13**
Eighth Term		
GEPL 4700	Community Planning Workshop	3
GEPL Major Elective [1]		3
Related or Minor course		3
Elective		4
	Hours	**13**
	Total Hours	**120**

[1] 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
	Hours	**16**
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
	Hours	**16**
Third Term		
GEPL 2110	Maps and Map Analysis	3
GEPL 2050	World Cities	3
Art/Humanities Core (ENGL 2710-2800) English Literature		3
Natural Science Core		3
Elementary Foreign Language		4
	Hours	**16**
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
	Hours	**16**
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
	Hours	**15**
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
	Hours	**15**
Seventh Term		
GEPL 4990	Geography and Planning as Disciplines and Professions	1
Urban Studies Elective		3
Related Major or Minor Course		7
Elective		3
	Hours	**14**
Eighth Term		
GEPL Major Elective		3
Elective		3
Related Major or Minor Course		3
Related Major or Minor Course		3
	Hours	**12**
	Total Hours	**120**

- 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.

B.S. in Geospatial Science

Bachelor of Science Degree in Geospatial Science

For this degree, students will complete all requirements as listed below as well as complete a minor in any of the following: Urban and Regional Planning, Economics, Data Analytics, Data Science, Computer Science Engineering.

Code	Title	Hours
Required:		
GEPL 2020	Introduction to Geospatial Science	3
GEPL 2110	Maps and Map Analysis	3
GEPL 4110	Geographic Information Systems	3
GEPL 4180	Geographic Information Systems Applications	3
GEPL 4300	GIS Programming	3
GEPL 4400	GeoAI and Machine Learning	3
GEPL 4420	Quantitative Methods in Geographic Research	3
GEPL 4490	Remote Sensing Of The Environment	3
GEPL 4500	Digital Image Analysis	3
GEPL 4520	Analytical And Computer Cartography	3
GEPL 4580	Location Analysis	4
GEPL 4800	Geospatial Science Research	3
CSET 1100	Introduction to Computer Science and Engineering Technology	4
CSET 3300	Database-Driven Web Sites	4
Electives		*9*
Select 3 advanced Geography electives not taken above.		
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	
GEPL 3440	Population Geography	
GEPL 3610	Conservation And Resources	
GEPL 3650	Economic Geography	
GEPL 3900	Environmental Planning	
GEPL 4040	Geography Education Strategies	
GEPL 4160	Patterns Of World Development	
GEPL 4210	Land Use Planning	
GEPL 4310	Geography Of Gypsies (Romanies) and Travelers - WAC	
GEPL 4530	Principles Of Urban Planning	
GEPL 4540	Weather And Climate	
GEPL 4570	Land Development And Planning	
GEPL 4600	Urban Design	
GEPL 4650	Geography of Earth Systems	
GEPL 4700	Community Planning Workshop	
GEPL 4710	Urban Geography	
GEPL 4750	Transportation Geography	
GEPL 4810	Political Geography	

First Term		Hours
AR 1000	First Year Orientation	1
MATH 1180	Reasoning With Mathematics	3
ENGL 1010 or ENGL 1110	College Composition 1 Co-Requisite or College Composition I	3
CSET 1100	Introduction to Computer Science and Engineering Technology	4
GEPL 2110	Maps and Map Analysis	3
	Hours	**14**
Second Term		
ENGL 1130 or ENGL 2950 or ENGL 2960	College Composition II: Academic Disciplines And Discourse or Technical Writing or Professional and Business Writing	3
GEPL 2020	Introduction to Geospatial Science	3
Arts/Humanities core		3
Social Science Core		3
Natural Science Core		3
	Hours	**15**
Third Term		
GEPL 4110	Geographic Information Systems	3
GEPL 4420	Quantitative Methods in Geographic Research	3
GEPL 4490	Remote Sensing Of The Environment	3
US Diversity		3
Social Science Core		3
	Hours	**15**
Fourth Term		
GEPL 4180	Geographic Information Systems Applications	3
GEPL 4500	Digital Image Analysis	3
Non-US Diversity		3
Natural Science Core		3

Natural Science Core-lab		1
GEPL 3610	Conservation And Resources (WAC)	3
	Hours	**16**
Fifth Term		
GEPL 4580	Location Analysis	4
Core Elective		3
Minor Course		6
Elective		3
	Hours	**16**
Sixth Term		
GEPL 4300	GIS Programming	3
GEPL 4520	Analytical And Computer Cartography	
Minor Course		6
CSET 3300	Database-Driven Web Sites	4
	Hours	**13**
Seventh Term		
GEPL 4400	GeoAI and Machine Learning	3
Minor Course		6
Advanced Geography elective		3
WAC course		3
	Hours	**15**
Eighth Term		
GEPL 4800	Geospatial Science Research	3
Minor Course		6
Elective		4
Advanced Geography elective		3
	Hours	**16**
	Total Hours	**120**

- Explain concepts and principles of geospatial science and technology (GIST);
- Identify various sources of high-quality spatial data;
- Operate GIST tools and software efficiently;
- Create solutions in ArcPy and Jupyter to complete automated GIST tasks;
- Practice using artificial intelligence (AI), machine learning (ML), and deep learning (DL) methods and capabilities available in GIST;
- Apply GeoAI, ML, and DL tools in both research and industry.
- Apply GeoAI, ML, and DL to solve real-world problems.
- Evaluate and apply GIST theories, methods, and tools to solve a real-world problem;
- Recognize the ethical issues in GIST research;
- Describe the future of GIST, its implications to our society and the earth, and ethical concerns.

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
Total Hours		**9**

- 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
Total Hours		**9**

- 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
Required:		
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
Total Hours		**18**

Minor in Human and Environmental Geography

Code	Title	Hours
Required Courses		
GEPL 2110	Maps and Map Analysis	3
GEPL 2010	Fundamentals Of Geography	3
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 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 4110	Geographic Information Systems	
GEPL 4490	Remote Sensing Of The Environment	
Total Hours		**18**

Minor in Urban and Regional Planning

Code	Title	Hours
Core Curriculum		
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
Electives		
Select 1 of the following:		3
GEPL 3900	Environmental Planning	
GEPL 4570	Land Development And Planning	
GEPL 4710	Urban Geography	
Total Hours		**18**

Department of History

Ami Pflugrad-Jackisch, Department Chair and 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 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. 462)
- Minor in History (p. 463)
- Minor in Holocaust and Genocide Studies (p. 463)

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, Summer, 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, Summer, 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: 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]
Social, cultural, and political history of Europe from c. 450-1000. Students will learn about the fall of the Roman Empire, the establishment of Christianity as the majority religion in Europe, the Franks, Charlemagne, pre-conquest England, Vikings, and more. Was life in the early middle ages nasty, brutish, and short or just different?
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 3230 Early Caribbean History
[3 credit hours]
This course covers the history of the early Caribbean through emancipation in the mid-nineteenth century. Topics include: The Carib and Taino Indians, European exploration and colonization, the Atlantic slave trade, and the golden age of piracy.
Term Offered: Spring, Summer, Fall

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 19h 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, Fall
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, Fall

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."

1. **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
Required Courses [1]		
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
Total Hours		**33**

[1] 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 Judith Herb College of Arts, Social Sciences, and Education 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.

First Term		Hours
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
	Hours	**16**
Second Term		
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
	Hours	**16**
Third Term		
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
	Hours	**16**
Fourth Term		
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
	Hours	**16**
Fifth Term		
HIST 3000-4000: Major Elective		6
ENGL 2710-2800 Arts/Humanities (English Lit)		3
Natural Sciences Core		3
Related or Minor course		3
	Hours	**15**
Sixth Term		
HIST Major Elective 4000-level		6
Related or Minor course		6
Elective		3
	Hours	**15**
Seventh Term		
HIST Major Elective 4000-level		6
Related or Minor course		6
Elective		3
	Hours	**15**
Eighth Term		
HIST Major Elective		3
Related or Minor course		6
Elective		6
	Hours	**15**
	Total Hours	**124**

- 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
Total Hours		**21**

Minor in Holocaust and Genocide Studies

Code	Title	Hours
Required		
HIST 4790	The Holocaust	3
Electives: Select 15 credits from the following:		
HIST 1060 or HIST 1070	World History From 1500 The Contemporary World	3
HIST 2260	World War II On Film	3
HIST 3530	20th Century Germany	3
HIST 4050	Muslims, Christians, and Jews in Medieval Spain	3
HIST 4980	Special Topics [1]	3
GEPL 4310	Geography Of Gypsies (Romanies) and Travelers - WAC	3
PHIL 3750	Social And Political Philosophy	3
PSC 4770	Human Rights	3
REL 4630	Religion, Violence and Peace	3

[1] The following Special Topics are approved for this minor:
Hitler and Nazi Germany and Comparative Genocide.

- Define the basic historical terms and concepts (including antisemitism) that explain the background to, and implementation of, the Holocaust in the context of modern world history.
- Understand the role of hate and intolerance in people and institutions that targeted Jews and other groups including political opponents, those deemed disabled, and members of the LGBTQ community.
- Analyze key aspects of the Holocaust as it relates to the broader field of genocide studies.

- Evaluate, compare, and contrast from multiple perspectives how different groups (e.g. victims, perpetrators, bystanders, survivors) were affected by, and helped carry out, the Holocaust.
- Think and write critically about the consequences of social exclusion, legalized discrimination and persecution, individual rights, and state sanctioned murder.

Legal and Para Legal Studies Program

Patrick Lawrence, Chair
Program Coordinator, John Schlageter

Accreditation

- The Legal and Paralegal Studies program maintains approval from the American Bar Association (ABA).

- Associate of Applied Science in Legal and Paralegal Studies (p. 466)
- BS in Legal and Paralegal Studies (p. 467)
- Certificate in Nurse Paralegal (p. 468)
- Minor in Legal Specialties (p. 469)
- Post Baccalaureate Certificate in Legal and Paralegal Studies (p. 469)

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 approch 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

LGL 6100 Legal Issues for the Elderly
[3 credit hours]
A comprehensive review of legal issues affecting elderly people, including estate planning, trusts, guardianships, powers of attorney, advance directives, social security, Medicare, Medicaid, grandparents' rights, and prenuptial agreements.
Term Offered: Summer, Fall

LGL 6400 Health Issues Patient Advocacy
[3 credit hours]
This course will focus on health related legal, regulatory and ethical matters, patient advocates may face. A review of the United States health system, medical ethics, ethics committees, and public health care policies will be discussed.
Term Offered: Spring

LGL 6600 Guided Study Patient Advocacy
[3 credit hours]
An exploration of Patient Advocacy topics or issues through advanced study of journal articles, research, readings, case studies, on-line postings, and on-line discussions, culminating in the completion of a reflective paper or thesis on a topic in the field of Patient Advocacy.
Term Offered: Spring

LGL 6980 Special Topics
[3 credit hours]
Content may vary, covering some aspect of the law or some area of special interest to the student and instructor. Students may repeat the course for credit as topics vary.
Term Offered: Summer

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
	Hours	**16**
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
	Hours	**15**
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
	Hours	**15**
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
	Hours	**14**
	Total Hours	**60**

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 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 or BUAD 2040	Principles Of Financial Accounting 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
Total Hours	**120**

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
	Hours	**16**
Second Term		
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
	Hours	**15**
Third Term		
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
	Hours	**15**
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
	Hours	**15**
Fifth Term		
LGL 3030	Advanced Legal Research & Writing	3
LGL 3050	Bankruptcy Practices & Consumer Applications	3
Legal Specialties Option Elective [1]		3
Natural Sciences Core		3
Natural Sciences Core Laboratory		1
PHIL 3000/4000 Philosophy Elective		3
	Hours	**16**
Sixth Term		
LGL 3010	Law Of Business Associations	3
LGL 3330	Litigation	3
LGL 4130	Clinic Experience	3
Legal Specialties Option Elective [1]		3
Natural Sciences Core		3
	Hours	**15**
Seventh Term		
LGL 4030	Contract Law	3
Legal Specialties Option Elective [1]		3
PHIL 3000/4000 Philosophy Elective		3
Core Elective (2000-level)		3
Non-US Diversity		3
	Hours	**15**
Eighth Term		
LGL 4940	Advanced Paralegal Internship	3
Legal Specialties Option Elective [1]		3
Core Elective (2000-level)		3
Diversity of US		3
Elective (2000-level)		1
	Hours	**13**
	Total Hours	**120**

[1] 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.

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
Total Hours		**21**

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
	Hours	**9**
Second Term		
LGL 1150	Tort Law	3
LGL 1160	Legal Research, Writing And Case Analysis	3
LGL 2210	Practices And Procedures In Administrative Law	3
	Hours	**9**
Third Term		
LGL 2940	Legal Assisting Internship	3
	Hours	**3**
	Total Hours	**21**

- 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 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
Required Course		
LGL 1010	Introduction To Law	3
LGL 1150	Tort Law	3
LGL 2120	Real Estate Transactions	3
Electives		
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	
Total Hours		**21**

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
Total Hours		**30**

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
	Hours	**15**
Second Term		
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 [1]	3
Law Elective (see below)		3
	Hours	**15**
	Total Hours	**30**

[1] 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 Music

Accredited by National Association of Schools of Music (NASM)

Jason Stumbo, Chair
Norm Damschroder, Undergraduate Advisor, jazz
Dr. Timothy D. Brakel, Undergraduate Advisor, education

Advanced Placement

Please see Registrar's website for information on Advanced Placement (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 Education in Music (p. 476)
- Instrumental Minor (p. 476)
- Jazz Minor (p. 477)
- Keyboard Minor (p. 477)
- Music History and Literature Minor (p. 478)
- Music Technology Minor (p. 478)
- Music Theory Minor (p. 479)
- Vocal Minor (p. 479)

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 & 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 & 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 & 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 & 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 & 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 rechnology 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 & 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 resonation 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: Spring, 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 permisison 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 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 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 3570 Guitar Pedagogy
[3 credit hours]
Comprehensive study of techniques and materials for private and group guitar instruction.

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
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 4460 Guitar History And Literature
[3 credit hours]
The history and literature of the guitar, including a study of the Renaissance and Baroque lute, vihuela and Baroque guitar, 19th and 20th century instruments.

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 repoertoire 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 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

Bachelor of Education in Music

For details on the baccalaureate program in music education (p. 547) see the Department of Teacher Education.

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 Judith Herb College of Arts, Social Sciences and Education 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: [1]		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 [2]	4
MUS 1800	Applied Music [3]	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 [2]	3
Electives. Select 2 hours of MUS Major level courses only, excluding ensembles		2
Total Hours		**22**

[1] Placement test required. Grade of C or better is required.
[2] A grade of C or better is required.
[3] 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 Judith Herb College of Arts, Social Sciences and Education 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: [1]		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) [2]	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
Total Hours		**22**

[1] Placement test required. Grade of C or better is required.
[2] 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 Judith Herb College of Arts, Social Sciences and Education 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 [1]	4
MUS 1800	Applied Music (take for a total of eight hours)) [2]	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 [1]	3
MUS 3580		2
Electives. Select 2 hours of MUS Major level courses only, excluding ensembles		1
Total Hours		**22**

[1] A grade of C or better is required.
[2] At least 6 hours must be in the same instrument or voice.

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 Judith Herb College of Arts, Social Sciences and Education 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: [1]		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 [2]	4
MUS 2410	Music History And Literature I: World Music And Jazz [2]	3
MUS 3410	Music History And Literature II [2]	3
MUS 3420	Music History And Literature III [2]	3
Music History Class, MUS 4000 level		3
Electives. Select 5 hours of MUS Major level courses only, excluding ensembles		5
Total Hours		**22**

[1] Placement test required. Grade of C or better is required.
[2] 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 Judith Herb College of Arts, Social Sciences and Education 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 18 Hours

Code	Title	Hours
MUS 2260	Electronic Music	2
MUS 2270	Recording Techniques	2
MUS 3260	Advanced Electronic Music	3
MUS 3270	Advanced Recording Techniques	2
MUS 4990	Special Projects	3
THR 3470	Stage Sound Design	3
COMM 2210	Introduction to Audio Production	3
Total Hours		**18**

- 1. Create music content, assemble, mix, and master MIDI/Digital Audio compositions.
- 2. Use MIDI/Digital audio software and hardware, including computers, controllers, synthesizers, DAWs, samplers, effects

processors, microphones, and mixers to create music that is effective.

- 3. Communicate effectively and work cooperatively with other music producers.

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 Judith Herb College of Arts, Social Sciences and Education 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: [1]		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 [2]	4
MUS 1620	Music Theory And Ear Training II [2]	4
MUS 2610	Music Theory And Ear Training III [2]	4
MUS 2620	Music Theory And Ear Training IV [2]	4
MUS 2410	Music History And Literature I: World Music And Jazz [2]	3
Total Hours		**22**

[1] Placement test required. Grade of C or better is required.
[2] 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 Judith Herb College of Arts, Social Sciences and Education 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: [1]		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 [2]	4
MUS 1800	Applied Music [3]	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 [2]	3
Electives. Select 2 hours of MUS Major level courses only, excluding ensembles		2
Total Hours		**22**

[1] Placement test required. Grade of C or better is required.
[2] A grade of C or better is required.
[3] At least 6 hours must be in the same instrument or voice.

Department of Philosophy and Religious Studies

Ammon Allred, 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

- Data and Technology Ethics Certificate (p. 484)
- Environmental Ethics Certificate (p. 484)
- Philosophy Minor (p. 485)
- Religious Studies Minor (p. 485)

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 1750 American Philosophy and Civic Thought
[3 credit hours]
Philosophical study of texts, ideas, and arguments that have shaped American experience. Special attention is given to the analysis and evaluation of arguments, American Pragmatism as a philosophical tradition, and the American tradition of civic thought.
Term Offered: Spring, Fall
Core Arts & 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: Spring, 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 & 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, Fall
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

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 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

Data and Technology Ethics Certificate

Code	Title	Hours
1. Logical and Ethical Foundations		
Select one of the following:		3
PHIL 1010	Introduction To Logic	
or PHIL 1020	Critical Thinking	
or PHIL 2400	Contemporary Moral Problems	
2. Professional Ethics [1]		
Select one of the following:		3
PHIL 3160	Data Science Ethics	
or PHIL 3310	Science And Society	
3. Applied Ethics and Philosophy [2]		
Select one of the following:		3
PHIL 3000	Symbolic Logic	
or PHIL 3060	Philosophy Of Language	
or PHIL 3140	Computers And Culture	
or PHIL 3400		
or PHIL 3630	Philosophy Of Psychology	
Total Hours		**9**

1. Students may use the unused option in the Professional Ethics as an Applied Ethics option.
2. 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
	Hours	**3**
Second Term		
PHIL 3160	Data Science Ethics	3
	Hours	**3**
Third Term		
PHIL 3000	Symbolic Logic	3
	Hours	**3**
	Total Hours	**9**

- 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 2000	World Philosophies	
or PHIL 2200	Introduction To Philosophy	
2. Professional Ethics		3
PHIL 3180	Environmental Ethics	
3. Applied Ethics [1]		3
PHIL 3120	Business Ethics	
or PHIL 3370	Medical Ethics	

	or PHIL 3560 Aesthetics	
Total Hours		**9**

[1] 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:

18 hours in philosophy with a minimum GPA of 2.0.

The program of study must be approved by the department undergraduate Adviser and verified before graduation.

Code	Title	Hours
PHIL 3210	Ancient And Medieval Philosophy	3
or PHIL 3230	Modern Philosophy	
One 4000 level PHIL course		3
PHIL electives [1]		12
Total Hours		**18**

[1] Only have one independent study (PHIL 4920) class can count toward elective requirements.

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
Required Courses		
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
Group One: Judaism and Christianity		
Group Two: Islam		
Group Three: Eastern (Asian) Religions		
Elective Course		
Select one course at the 4000 level. See major for details.		3
Total Hours		**18**

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 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. 491)
- Minor in Political Science (p. 494)
- Minor in Public Administration (p. 494)

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 1210 American National Government and Civics
[3 credit hours]
An introductory survey of the institutions, processes, and politics of the government of the United States since its foundation and its relationship to state governments. Primary texts include influential documents that have shaped the U.S. government, including, but not limited to, The United States Constitution, Declaration of Independence, selected Federalist Papers, Gettysburg Address, Emancipation Proclamation, Martin Luther King Jr.'s Letter from Birmingham Jail, and the writings of Adam Smith. The course adheres to appropriate university, state, and federal guidelines on assessment, content, and transferability.
Term Offered: Spring, Summer, Fall
Core Social Sciences

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, Summer, 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 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- or PSC 1210 with a minimum grade of D-
Term Offered: Spring, Fall

PSC 3550 Human Rights and Humanitarian Law
[3 credit hours]
What are human rights? Why do states repress citizens? How do human rights norms diffuse? How do human rights defenders protect rights? What is humanitarian law? How does it different from human rights law? This class will examine both the theoretical and empirical contributions to the study of human rights and humanitarian law from the social sciences and law, as well as, human rights best (and worst) practices. Specifically, the class will examine the full extent of UN human rights mechanisms - both on the norm creation side and the protection side of things.
Term Offered: Spring, Fall

PSC 3560 Legal Frameworks of International Governance
[3 credit hours]
The purpose of this course is to introduce major international institutions, particularly intergovernmental institutions to students by developing a knowledge of the institutional architecture of relevant institutions, the theoretical concepts that explain how institutions perform, and by analyzing case studies that illustrate best and worst practices by numerous international institutions. It is my hope that this course will help students gain a better understanding of the interconnectedness of the world and to help students develop the research and critical thinking skills necessary for advanced courses at both the undergraduate and graduate level.
Term Offered: Spring, Fall

PSC 3570 European Law and Governance
[3 credit hours]
This course will give students an overview of different European states, governments, politics, and law. In addition, the course will examine the European Union, its structures, and key issues facing both the European Union and Europe. Issues include European integration, the rise of authoritarian political parties, the recent refugee and migration crisis, European foreign policy, and the creation and expansion of European law and how it impacts the world.
Term Offered: Spring, Fall

PSC 3580 Terrorism and National Security
[3 credit hours]
Terrorism is one of the biggest issues of our time. In this class, students will gain an historical, empirical, and theoretical understanding of terrorism and potential responses to terrorism. What are the causes of terrorism? What factors lead to an individual joining a militant group? Why do groups take up arms against the status quo? What do terrorists and militant groups hope to achieve? Which tactics are most successful for terrorists? Which are the least successful tactics? How can states counter terrorism? What are the best and worst practices in counterterrorism? Why do states use political violence and how is it related to terrorism? What does the future hold for terrorism and counterterrorism? This a a small sample of the questions asked in this course.
Term Offered: Spring, Summer

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 1210 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 4580 International Law
[3 credit hours]
A course focusing on the foundations of international law and the current use of international law in cases covering a wide range of issues such war, weapons, diplomacy, the environment, economics, and human rights.
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. 491)
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Political Science - Legal Studies Concentration

Political Science

Code	Title	Hours
PSC 1200	American National Government	3
or PSC 1210	American National Government and Civics	
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
Total Hours		**31**

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
or PSC 1210	American National Government and Civics	
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 4580	International Law	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 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 Marginalized Communities	3
ENGL 3660	Latino 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

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
Concentration in Legal Studies		
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
or PSC 1210	American National Government and Civics	
PSC 3500	Principles Of Law	3
At least four courses from the department's specialized law and legal studies course offerings:		12
PSC 3510	Constitutional Law I	
PSC 3520	Constitutional Law II	
PSC 4550	CONTEMPORARY ISSUES IN LAW AND POLITICS	
PSC 4580	International Law	
Three courses from the following four:		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	
Major Electives [1]		6
Total Hours		**33**

[1] 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
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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
	Hours	**17**
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
	Hours	**14**
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
	Hours	**15**
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
	Hours	**15**
Fifth Term		
PSC Major Elective		6
Related or Minor course (WAC)		3
Related or Minor course		3
Elective		3
	Hours	**15**
Sixth Term		
PSC Major Elective		3
PSC Major Elective		3
Related or Minor course		3
Elective		3
Diversity of US		3
	Hours	**15**
Seventh Term		
PSC Major Elective		6
Non-US Diversity		3
Elective		3
Related or Minor course		3
	Hours	**15**
Eighth Term		
PSC 4950	Capstone in Political Science	1
Elective		10
Related or Minor course		3
	Hours	**14**
	Total Hours	**120**

Optional Global Studies Concentration

First Term		Hours
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
PSC 1200 or PSC 1210	American National Government or American National Government and Civics	3
Elementary Foreign Language I		4
HIST 1010-1200 Arts/Humanities Core (History)		3
	Hours	**17**

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
	Hours	**14**
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
	Hours	**15**
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
	Hours	**15**
Fifth Term		
PSC International Elective		3
PSC International Elective		3
Related Field Course (WAC)		3
Related Field Course		3
Elective		3
	Hours	**15**
Sixth Term		
PSC International Elective		3
PSC International Elective		3
Related Field Course		3
Related Field Course (WAC)		3
Diversity US Course		3
	Hours	**15**
Seventh Term		
PSC International Elective		3
PSC International Elective		3
Related Field Course		3
Elective		3
Elective		3
	Hours	**15**
Eighth Term		
GLST 4900	Senior Seminar In Global Studies	3
PSC 4950	Capstone in Political Science	1
Related Field Course		3
Electives		7
	Hours	**14**
	Total Hours	**120**

Optional Legal Studies Concentration

First Term		**Hours**
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
PSC 1200 or PSC 1210	American National Government or American National Government and Civics	3
Elementary Foreign Language I		4
HIST 1010-1200 Arts/Humanities Core (History)		3
	Hours	**17**
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
	Hours	**14**
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
	Hours	**15**
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
	Hours	**15**
Fifth Term		
PSC Major Elective		6
Related or Minor course (WAC)		3
Related or Minor course		3
Elective		3
	Hours	**15**
Sixth Term		
PSC Major Elective		3
PSC Major Elective		3
Related or Minor course		3
Elective		3

Diversity of US		3
	Hours	**15**
Seventh Term		
PSC Major Elective		6
Non-US Diversity		3
Elective		3
Related or Minor course		3
	Hours	**15**
Eighth Term		
PSC 4950	Capstone in Political Science	1
Elective		10
Related or Minor course		3
	Hours	**14**
	Total Hours	**120**

- 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 or PSC 1210) 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
Public Administration Courses		**18**
PSC 1200	American National Government	
or PSC 1210	American National Government and Civics	
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)	
Total Hours		**18**

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

Kamala London Newton, Ph.D., Chair
Peter Mezo, PhD., Associate Chair and Undergraduate Coordinator

Advanced Placement Program

Refer to the University of Toledo's Registrar page at 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. 498)
- Minor in Psychology (p. 501)

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
Total Hours		**9**

The final GPA in all Psychology courses must be 3.4 or higher.

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 2110 Happy Minds: Science and Practice of Well-Being
[3 credit hours]
This course introduces the psychology of happiness and well-being while guiding students in applying evidence-based practices to their own lives. Through readings, discussions, and weekly "happiness labs," students will develop a personalized toolkit of strategies for resilience, selfcare, and flourishing. By the end of the course, students will have practical skills that support success and fulfillment during college and beyond.
Term Offered: Spring, Summer, 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 2500 Developmental Psychology
[3 credit hours]
Emphasizes change and continuity in development, with a focus on research and theory during infancy, childhood, and adolescence.
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
Multicultural US Diversity

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 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. :030Developmental 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

B.A. in Psychology

The major in Psychology requires a minimum of 40 semester hours of Psychology program courses, with at least 22 of these hours taken at the University of Toledo. 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 flexible foundation in the behavioral sciences. This background will prepare students for a wide variety of careers, as well as further education in psychology and related disciplines, including professional programs, such as health, law, and business. The B.A. is structured to provide both breadth and depth in psychological science, as well as to promote rigor in the scientific evaluation of human behavior. In addition, the B.A. includes options for pipeline M.A. programs in School Psychology and Counselor Education at the University of Toledo.

The major in Psychology is a minimum of 40 credits overall. In addition, students must complete required college requirements and general education core requirements.

Code	Title	Hours
PSY 1010	Principles Of Psychology	3
Complete 3 credits from Psychological Science of Health, and 9 credits from Foundations and Applications of Psychological Science.		
Psychological Science of Health		*3*
Select one from the following:		
PSY 2110	Happy Minds: Science and Practice of Well-Being	
PSY 3210	Clinical Psychology	
PSY 3220	Psychopathology Of Childhood	
PSY 3230	Psychological Testing	
PSY 3740	Health Psychology	
Foundations and Applications of Psychological Science		*9*
Select three from the following:		
PSY 2400	Cognitive Psychology	
PSY 2600	Psychobiology	
PSY 2610	Learning And Motivation	
PSY 3000	History Of Psychology	
PSY 3010	Culture And Psychology	
PSY 3300	Organizational Development Theory and Principles	
PSY 3310	OD Practices	
PSY 3320	Psychology of Work	
PSY 3330	Psychology of Leadership	
PSY 3400	Cognitive Neuropsychology	
PSY 3630	Everyday Behavior Analysis	
PSY 3710	Psychology and the Law	
PSY 3720	Social Cognition	
PSY 3730	Stereotyping, Prejudice, & Discrimination	
Methodological Courses [1]		
PSY 2100	Statistical Methods [2]	3
PSY 3110	Research Methods In Psychology [3]	4
Ohio Transfer Assurance Guideline Courses		
PSY 2200	Abnormal Psychology	3
PSY 2700	Social Psychology	3
PSY 2510	Lifespan Developmental Psychology	3
or PSY 2500	Developmental Psychology	
PSY 3200	Personality And Individual Differences	3
Psychology Electives		**6**
This requirement may be satisfied by any additional psychology courses not yet taken, including but not limited to externships, research practica, and special topics.		
Total Hours		**40**

[1] It is strongly recommended that the methodological courses be initiated early in the program of study.

[2] Prerequisite: MATH 1180 (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcatalog.utoledo.edu%2Fsearch%2F%3FP%3DMATH%25201180&data=05%7C02%7CPeter.Mezo%40UToledo.Edu%7C093f55473db7447bd0f508de697516b2%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C639064148776718504%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=xEjMuA7nhl%2FhQ7j8QEC381Au5Phqb%2FUBJohLtlRNoN8%3D&reserved=0) with a minimum grade of C- or MATH 1200 (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcatalog.utoledo.edu%2Fsearch%2F%3FP%3DMATH%25201200&data=05%7C02%7CPeter.Mezo%40UToledo.Edu%7C093f55473db7447bd0f508de697516b2%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C639064148776738079%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=0ZMi%2F6XKqJqn%2FpliQrlRUAgVF61Z%2BFHdztom37F%2FvKo%3D&reserved=0) with a minimum grade of C- or MATH 1320 (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcatalog.utoledo.edu%2Fsearch%2F%3FP%3DMATH%25201320&data=05%7C02%7CPeter.Mezo%40UToledo.Edu%7C093f55473db7447bd0f508de697516b2%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C639064148776757585%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=Fm9yJbm%2B1erpewJZKe%2Fmwf4M7Uan4RX2EW24%2BC4P3UU%3D&reserved=0) with a minimum grade of C- or MATH 1330 (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcatalog.utoledo.edu%2Fsearch%2F%3FP%3DMATH%25201330&data=05%7C02%7CPeter.Mezo%40UToledo.Edu%7C093f55473db7447bd0f508de697516b2%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C639064148776936425%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=2P6QbyoPMnBSXlWZ3mZ7gpoJ1kJkHRucUwd5zXEt8XU%3D&reserved=0) with a minimum grade of C- or MATH 1340 (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcatalog.utoledo.edu%2Fsearch%2F%3FP%3DMATH%25201340&data=05%7C02%7CPeter.Mezo%40UToledo.Edu%7C093f55473db7447bd0f508de697516b2%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C639064148776961051%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=495lvWYW5noJUnks5SHyXbMPxFtkFp99UlhLWg7PkXc%3D&reserved=0) with a minimum grade of C- or MATH 1750 (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcatalog.utoledo.edu%2Fsearch%2F%3FP%3DMATH%25201750&data=05%7C02%7CPeter.Mezo%40UToledo.Edu%7C093f55473db7447bd0f508de697516b2%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C639064148776981014%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=dT%2Fxe8Ej8pwdqbidmpdRBbUzvm4UBnWpizKxx0c0xJ4%3D&reserved=0) with a minimum grade of C- or MATH 1830 with a minimum grade of C- or MATH 1850 (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcatalog.utoledo.edu%2Fsearch%2F%3FP%3DMATH%25201850&data=05%7C02%7CPeter.Mezo%40UToledo.Edu%7C093f55473db7447bd0f508de697516b2%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C639064148777001016%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=lWtV%2BF4dTNP1IlaLqfuTiW4Ef3tXzJ2QIP8LEz8bcZw%3D&reserved=0) with a minimum grade of C- or MATH 2450 (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcatalog.utoledo.edu%2Fsearch%2F%3FP%3DMATH%25202450&data=05%7C02%7CPeter.Mezo%40UToledo.Edu%7C093f55473db7447bd0f508de697516b2%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C639064148777022945%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=O7bbV5L1f2myr%2B6Oxib4Gzgcseg1F2iticiypTWnkyc%3D&reserved=0) with a minimum grade of C- or MATH 2600 (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcatalog.utoledo.edu%2Fsearch%2F%3FP%3DMATH%25202600&data=05%7C02%7CPeter.Mezo%40UToledo.Edu%7C093f55473db7447bd0f508de697516b2%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C639064148777043546%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=lM0w73aFDMYYdNtsBhB4srmdQfNIURd5Lu2edIs1cz8%3D&reserved=0)

[3] Must earn a C- or higher in PSY 2100 before taking PSY 3110.

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 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 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
Intermediate Foreign Language I or approved culture course		3
Math Core		3
Core Elective		3
	Hours	**16**
Second Term		
PSY 2100	Statistical Methods	3
PSY 2510 or PSY 2500	Lifespan Developmental Psychology or Developmental Psychology	3
Foundations and Applications of Psychological Science Major Elective		3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Intermediate Foreign Language II or approved culture course		3
	Hours	**15**
Third Term		
PSY 3110	Research Methods In Psychology (WAC)	4
PSY 2700	Social Psychology	3
Social Sciences Core		3
Natural Sciences Core		3
Arts/Humanities Core		3
	Hours	**16**
Fourth Term		
PSY 2200	Abnormal Psychology	3
PSY 3200	Personality And Individual Differences	3
Natural Sciences Core		3
Natural Sciences Core Laboratory		1
Arts/Humanities Core		3
Social Sciences Core		3
	Hours	**16**
Fifth Term		
Foundations and Applications of Psychological Science Major Elective		3
Psychological Science of Health Major Elective		3
Core Elective		3
Diversity of US		3
Non-US Diversity		3
	Hours	**15**
Sixth Term		
Foundations and Applications of Psychological Science Major Elective		3
Core Elective		3
Elective - Major or Minor		3
Elective - Major or Minor		3
Elective - Major or Minor		3
	Hours	**15**
Seventh Term		
Psychology Major Elective		3
Elective - Major or Minor		3
Elective - Major or Minor		3
Elective - Major or Minor		3
Elective - Major or Minor		3
	Hours	**15**
Eighth Term		
Psychology Major Elective		3
Elective - Major or Minor		3
Elective - Major or Minor		3
Elective - Major or Minor		3
	Hours	**12**
	Total Hours	**120**

- 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
Basic Psychology Courses		
Select 4 of the following: [1]		12
PSY 2200	Abnormal Psychology	
PSY 2400	Cognitive Psychology	
PSY 2510	Lifespan Developmental Psychology	
PSY 2600	Psychobiology	
PSY 2700	Social Psychology	
Advanced Courses		
Select 9 hours of Psychology courses numbered 3000-4990 [2]		9
Total Hours		**21**

[1] With the approval of a Department advisor.

[2] 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

Thomas Zych, 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. 506)
- Minor in Africana Studies (p. 512)
- Minor in Anthropology (p. 512)
- Minor in Disability Studies (p. 512)
- Minor in Sociology (p. 513)

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.

ANTH 1020 Introduction To Anthropology
[3 credit hours]
A survey of the varied aspects of anthropology, including cultural anthropology, archaeology, biological anthropology, and linguistics. (not for major credit)
Term Offered: Spring, Summer, Fall
Core Social Sciences, OT36 Social Science

ANTH 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

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, Multicultural Non-US Diversity, 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 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 ecotoursim 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 Subsaharan Africa
[3 credit hours]
The cultures and societies of the Subsaharan peoples of Africa.
Prerequisites: ANTH 2800 with a minimum grade of D-
Term Offered: Spring, Fall
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 protfolio 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]
This course teaches methods of excavation and recovery of archaeological data. The field school is conducted during excavation of a historic site in the Toledo area.
Term Offered: Summer

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: Spring, 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.
Term Offered: Spring, Fall

ANTH 4560 Ethnographic Fieldwork
[6 credit hours]
Consists of field work involving the student in meaningful research problems at the community level. Introduces the student to the methods and problems of participant research.
Term Offered: Summer, Fall

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 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 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.
Term Offered: Spring, Fall
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 ecotoursim in the Africana world of Africa, the Caribbean, and Latin America.
Term Offered: Spring, Fall

SOC 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 protfolio for graduate work or career.
Prerequisites: ANTH 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.
Term Offered: Spring, Fall

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 4700 Eugenics Past and Present
[3 credit hours]
This course provides a historical overview of the ideologies, implementation, and global spread of eugenics, primarily focusing on the United States but also including non-U.S. perspectives. We conclude by raising contemporary questions about eugenics, relating the past to the present.
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: Spring, 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 4850 Public and Applied Sociology
[3 credit hours]
This course introduces students to how sociological research can be made accessible to communities, organizations, and broad audiences. Students learn how they can use sociological skills and insights to improve social conditions and contribute to the betterment of society.
Term Offered: Spring, Summer, Fall

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 4930 Disability and Social Services: Housing, Health, and Habilitation
[3 credit hours]
In this course, we use a disability studies approach to explore the social, cultural, and political dimensions of disability social services. Using an array of social scientific research methods and theory, we interrogate issues of stigma, authority and knowledge across an array of fields from direct care to social work to behavioral health services and more.
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]

B.A. in Anthropology

Anthropology, BA
Anthropology, BA - Concentration in Applied Anthropology: Cultural Resource Management (p. 507)
Anthropology, BA - Concentration in Applied Anthropology: Medical Anthropology (p. 508)

Anthropology, BA

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), 3.0 credits of which are to be fulfilled by LING 3150 or LING 4190. At least 6.0 of the remaining related fields credits must be completed at the 3000 & 4000 levels.

The undergraduate major of 33 hours must include the following:

Code	Title	Hours
Core Courses		
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	Ethnographic Fieldwork	
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 Sociology I	1
ANTH 4000	Proseminar In Anthropology II	2
1 WAC in discipline		
Electives		
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.		
Total Hours		**33**

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
Related Hours		
LING 3150	Linguistic Principles	3
or LING 4190	Sociolinguistics	
Electives		

Select 15 hours of electives; six hours must be from the 3000/4000 level	15
OR	
any minor	
OR	
a second major	
AND	
1 WAC course is required from outside of the discipline within the Judith Herb College of Arts, Social Sciences, and Education; WAC courses part of a second major or a minor outside the college will be accepted.	
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.

Anthropology, BA - Concentration in Applied Anthropology: Cultural Resource Management

A major in Applied Anthropology concentrated in the field of Cultural Resource Management consists of a minimum of 39 hours of coursework: 27 hours of core courses in anthropology and an additional selective 12 hours of elective courses. Also required are 18 hours of course work in a related field(s), at least 9.0 credits of which must be completed at the 3000 and/or 4000 levels.

The undergraduate major with a concentration in **Cultural Resource Management** of 39 hours is to be met with the following:

Code	Title	Hours
Required Core Courses		
ANTH 2000	Proseminar In Sociology I	1
ANTH 2020	Introduction To Archaeology	3
ANTH 2700	Human Evolution	3
ANTH 2800	Cultural Anthropology	3
ANTH 4000	Proseminar In Anthropology II	2
ANTH 4200	History and Theory in Anthropology-WAC	3
ANTH 4300	Historic Preservation and Cultural Resource Management - WAC	3
Methods		
Required:		
ANTH 4510	Field Methods in Archaeology	6
and at least one of the following methods courses:		3
ANTH 4520	Laboratory Methods In Archaeology	
or ANTH 4790	Human Osteology	
Electives		
At least two of the following electives:		*6*
ANTH 2750	World Archaeology	
or ANTH 3000	Environmental Anthropology	
or ANTH 3900	North American Archaeology	
At least one of the following electives:		*3*
ANTH 3850	Peoples Of World: An Evolutionary Approach	
or ANTH 3920	Indians Of North America	
or ANTH 3940	Peoples Of Subsaharan Africa	
or ANTH 4920	Directed Readings In Anthropology	
or ANTH 4980	Problems In Anthropology	
At least one of the following applied experiences:		*3*
ANTH 4910	Independent Research In Anthropology	
or ANTH 4940	Internship in Anthropology	
or ANTH 4950		
1 WAC within college, outside of discipline is required		
Courses in the subfields of anthropology not listed in the catalog can sometimes be arranged through independent study with department faculty.		
Total Hours		**39**

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
Related Hours		
SOC 3290	Social Statistics	3
GEPL 4110	Geographic Information Systems	3
or EEES 4480	GIS Applications in ENSC	
Electives		
Select 12 hours of electives		12
6 hours of related courses must be taken at the 3000 and/or 4000 levels.		
Recommendations include:		
ACCT 4410	Governmental And Not-For-profit Accounting	
or ACCT 4410	Governmental And Not-For-profit Accounting	
or ARTH 2200	Ethnographic Art	
or ARTH 3350	Ancient Art Of The Americas	
or ARTH 3350	Ancient Art Of The Americas	
or ARTH 3900	Art Museum Practices	
or BUAD 3500	Sustainable Business Practices	
or BLAW 3550	Legal And Safety Compliance Issues In Human Resource Management	
or BMGT 2050	Small Business Management	
or DST 2020	Introduction to Disability Studies	
or DST 3030	Disability Culture	
or EEES 1010	Physical Geology	
or EEES 2020	Introduction to the Environment: Energy and Climate	
or EEES 2030	Introduction to the Environment Land-Use and Water	
or EEES 2100	Fundamentals Of Geology	
or EEES 2500	Computer Applications In Environmental Sciences	
or EEES 2510	Advanced Computer Applications	
or EEES 3100	Surficial Processes	
or EEES 3210	Mineralogy and Petrology	
or EEES 4240	Soil Science	

or EEES 4490	Remote Sensing of The Environment
or EEES 4610	Environmental Geophysics
or GEPL 2110	Maps and Map Analysis
or GEPL 4180	Geographic Information Systems Applications
or GEPL 4490	Remote Sensing Of The Environment
or GEPL 4500	Digital Image Analysis
or HIST 1100	Latin American Civilizations
or HIST 1120	Middle East Civilization
or HIST 2010	America To 1865
or HIST 2050	Ancient Greece
or HIST 2060	Ancient Rome
or HIST 2170	Great Britain To 1714
or HIST 2340	American Indian History
or HIST 3270	The City In American History, 1607-1850
or HIST 3290	Ohio History
or HIST 3540	History Of The Middle East From 600 To 1500
or HIST 3550	History Of The Middle East Since 1500
or HIST 3600	Women In American History
or HIST 3630	Africa To 1800
or LGL 4030	Contract Law
or PSC 4340	Environmental Policy
or PSC 4810	Environmental Justice
or WGST 2010	Introduction To Gender Studies: Gender, Sex And Difference
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.

Anthropology, BA - Concentration in Applied Anthropology: Medical Anthropology

A major in Applied Anthropology concentrated in the field of Medical Anthropology consists of a minimum of 36 hours of coursework: 24 hours of core courses in anthropology and an additional selective 12 hours of elective courses. Also required are 18 hours of course work in a related field(s), at least 9.0 credits of which must be completed at the 3000 and/or 4000 levels.

The undergraduate major with a concentration in **Medical Anthropology** of 36 hours is to be met with the following:

Code	Title	Hours
Core Courses		
ANTH 2000	Proseminar In Sociology I	1
ANTH 2020	Introduction To Archaeology	3
ANTH 2700	Human Evolution	3
ANTH 2800	Cultural Anthropology	3
ANTH 4000	Proseminar In Anthropology II	2
ANTH 4200	History and Theory in Anthropology-WAC	3
ANTH 4760	Medical Anthropology	3
Methods		
At lease two of the following methods courses are required:		*6*
ANTH 4440	People, Population, and Society: Demographic Analysis	
or ANTH 453	Qualitative Approaches in Social Science Research	
or ANTH 456	Ethnographic Fieldwork	
or ANTH 479	Human Osteology	
Electives		
At least two of the following electives:		6
ANTH 2900	African American Culture	
or ANTH 3336	Food, Health, Society	
or ANTH 4820	Anthropology Of Religion	
At least one of the following electives:		3
ANTH 3850	Peoples Of World: An Evolutionary Approach	
or ANTH 3920	Indians Of North America	
or ANTH 3940	Peoples Of Subsaharan Africa	
or ANTH 4920	Directed Readings In Anthropology	
or ANTH 4980	Problems In Anthropology	
At least one of the following applied experiences:		3
ANTH 4910	Independent Research In Anthropology	
or ANTH 4940	Internship in Anthropology	
or ANTH 4950		
1 WAC within college, outside of discipline is required		
Courses in the subfields of anthropology not listed in the catalog can sometimes be arranged through independent study with department faculty.		
Total Hours		**36**

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
Related Hours		
Required:		
SOC 3290	Social Statistics	3
Electives		
Select 15 hours of electives; 6 hours must be from the 3000/4000 level.		*15*
Recommendations include:		
ARTH 3750	Art and Disease - WAC	
or BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	
or BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	
or BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	
or BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	
or BIOL 3010	Molecular Genetics	
or BIOL 3030	Cell Biology	

or BIOL 3210	Human Nutrition	
or BIOL 4030	Microbiology	
or BIOL 4050	Immunology	
or BIOL 4110	Human Genetics and Genomics	
or COMM 2830	Organizational Communication	
or COUN 2220		
or DST 2020	Introduction to Disability Studies	
or DST 3030	Disability Culture	
or DST 3600	Feminist Health Humanities	
or HHS 3100	Introduction to Social Determinants of Health	
or HEAL 2700	Introduction to Public Health	
or HEAL 2750	Introduction to Epidemiology	
or HEAL 3000	Global Health	
or HEAL 3800	Death And Dying	
or HIST 4300	LGBTQ History in America	
or HIST 2340	American Indian History	
or LALX 2000	Introduction to Latin American and Latinx Studies	
or LST 4640	Disability Law and Human Rights	
or LGL 4230	Health Care And The Law	
or LING 4190	Sociolinguistics	
or PHIL 2000	World Philosophies	
or PHIL 3370	Medical Ethics	
or PSC 4420	Political Determinants of Health	
or PSY 2510	Lifespan Developmental Psychology	
or PSY 3010	Culture And Psychology	
or REL 1220	World Religions	
or SOC 2640	Race, Class, And Gender	
or SOC 3640	Social Inequality	
or SOC 4160	Health And Gender	
or SOC 4180	Medical Sociology	
or WGST 3600	Feminist Health Humanities	
or WGST 4160	Health And Gender	
or EXSC 2560	Anatomy and Physiology I	
or EXSC 2570	Human Anatomy and Physiol II	
or EXSC 2470	Human Anatomy And Physiology II Lab	
or CHEM 2410	Organic Chemistry I	
or CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	
or CHEM 2420	Organic Chemistry II	
or CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	
or CHEM 3510	Biochemistry I	
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.

Anthropology, BA
Anthropology, BA - Concentration in Applied Anthropology: Cultural Resource Management (p. 507)
Anthropology, BA - Concentration in Applied Anthropology: Medical Anthropology (p. 511)

Anthropology, BA

Below is a suggested sample plan of study. Consult your degree audit for your program requirements and discuss optimal course selection with your Major advisor.

First Term		**Hours**
AR 1000	First Year Orientation	1
ANTH 2000	Proseminar In Sociology I	1
ANTH 2020	Introduction To Archaeology	3
ANTH 2700	Human Evolution	3
ENGL 1110	College Composition I	3
College Humanities, Fine Arts, or Social Science Core		3
	Hours	**14**
Second Term		
ANTH 2800	Cultural Anthropology	3
Anthropology Major Elective		3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180 or MATH 1200	Reasoning With Mathematics or Mathematical Modeling and Problem Solving	3
Natural Science Core		3
	Hours	**15**
Third Term		
ANTH 3850 or ANTH 3920 or ANTH 3940	Peoples Of World: An Evolutionary Approach or Indians Of North America or Peoples Of Subsaharan Africa	3
Foreign Language		4
Related Fields Course		3
College Humanities, Fine Arts, or Social Sciences Core		3
Natural Science Core		3
Natural Science Lab		1
	Hours	**17**
Fourth Term		
Anthropology Major Elective		3
LING 3150 or LING 4190	Linguistic Principles or Sociolinguistics	3
Foreign Language		4
University Humanities/Fine Arts Core		3
Social Science Elective		3
	Hours	**16**
Fifth Term		
ANTH 4440 or ANTH 4510 or ANTH 4520 or ANTH 4530 or ANTH 4560	People, Population, and Society: Demographic Analysis or Field Methods in Archaeology or Laboratory Methods In Archaeology or Qualitative Approaches in Social Science Research or Ethnographic Fieldwork	3
Related Fields Course		3

Diversity of U.S. Culture - UT Core		3
College Humanities, Fine Arts, or Social Sciences Core		3
General Elective		3
	Hours	**15**
Sixth Term		
ANTH 4200	History and Theory in Anthropology-WAC	3
Anthropology Major Elective		3
Diversity of Non-U.S. Culture		3
Related Fields Course		3
General Elective		3
	Hours	**15**
Seventh Term		
ANTH 4000	Proseminar In Anthropology II	2
Anthropology Major Elective		3
Related Fields Course		3
University Humanities/Fine Arts Core		3
General Elective		3
	Hours	**14**
Eighth Term		
Anthropology Major Elective		3
Related Fields Course		3
General Elective		3
General Elective		3
General Elective		2
	Hours	**14**
	Total Hours	**120**

Anthropology, BA - Concentration in Applied Anthropology: Cultural Resource Management

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

First Term		**Hours**
ANTH 2000	Proseminar In Sociology I	1
ANTH 2020	Introduction To Archaeology	3
ANTH 2700	Human Evolution	3
AR 1000	First Year Orientation	1
ENGL 1110	College Composition I	3
Art/Humanities or Social Science Core		3
	Hours	**14**
Second Term		
ANTH 2800	Cultural Anthropology	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180 or MATH 1200	Reasoning With Mathematics or Mathematical Modeling and Problem Solving	3
Diversity of U.S.		3
Natural Sciences Core		3
	Hours	**15**
Third Term		
ANTH 3850 or ANTH 3920 or ANTH 3940 or ANTH 4920 or ANTH 4980	Peoples Of World: An Evolutionary Approach or Indians Of North America or Peoples Of Subsaharan Africa or Directed Readings In Anthropology or Problems In Anthropology	3
Art/Humanities or Social Science Core		3
Foreign Language I		4
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
General Elective		3
	Hours	**17**
Fourth Term		
ANTH 2750 or ANTH 3000 or ANTH 3900	World Archaeology or Environmental Anthropology or North American Archaeology	3
ANTH 4510	Field Methods in Archaeology	6
Art/Humanities Core		3
Foreign Language II		4
	Hours	**16**
Fifth Term		
ANTH 4520 or ANTH 4790	Laboratory Methods In Archaeology or Human Osteology	3
ANTH 3900 or ANTH 2750 or ANTH 3000	North American Archaeology or World Archaeology or Environmental Anthropology	3
Art/Humanities or Social Science Core		3
SOC 3290	Social Statistics	3
Social Science Core		3
	Hours	**15**
Sixth Term		
ANTH 4200	History and Theory in Anthropology-WAC	3
GEPL 4110 or EEES 4480	Geographic Information Systems or GIS Applications in ENSC	3
Related Fields Course (WAC)		3
Social Science Core		3
Art/Humanities Core		3
	Hours	**15**
Seventh Term		
ANTH 4000	Proseminar In Anthropology II	2
ANTH 4910 or ANTH 4940 or ANTH 4950	Independent Research In Anthropology or Internship in Anthropology or	3
Anthropology Major Elective		3
Related Fields Courses		3
Diversity Non-U.S.		3
	Hours	**14**

Eighth Term		
ANTH 4300	Historic Preservation and Cultural Resource Management - WAC	3
Related Fields Course		3
Related Fields Course		3
Anthropology Major Elective		3
General Elective		2
	Hours	**14**
	Total Hours	**120**

Anthropology, BA - Concentration in Applied Anthropology: Medical Anthropology

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
ANTH 2000	Proseminar In Sociology I	1
ANTH 2020	Introduction To Archaeology	3
ANTH 2700	Human Evolution	3
Arts/Humanities or Social Science Core		3
	Hours	**14**
Second Term		
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
ANTH 2800	Cultural Anthropology	3
MATH 1180 or MATH 1200	Reasoning With Mathematics or Mathematical Modeling and Problem Solving	3
Related Fields Course		3
Natural Sciences Core		3
Natural Sciences Core (Lab)		1
	Hours	**16**
Third Term		
Major Elective: ANTH 2900, 3330, or 4820		3
Foreign Language I		4
Arts/Humanities or Social Science Core		3
Natural Sciences Core		3
Humanities/Fine Arts Core		3
	Hours	**16**
Fourth Term		
Anthropology Major Elective		3
Related Fields Course		3
Related Fields Course (WAC)		3
Foreign Language II		4
Social Science COre		3
	Hours	**16**
Fifth Term		
ANTH 4760	Medical Anthropology	3
Required Method #1: ANTH 4440, 4530, 4560, or 4790		3
Related Fields Course		3
Arts/Humanities Core		3
Diversity of U.S.		3
	Hours	**15**
Sixth Term		
ANTH 4200	History and Theory in Anthropology-WAC	3
Major Elective: ANTH 2900, 3330, or 4820		3
Required Method #2: ANTH 4440, 4530, 4560, or 4790		3
SOC 3290	Social Statistics	3
Art/Humanities or Social Science Core		3
	Hours	**15**
Seventh Term		
ANTH 4000	Proseminar In Anthropology II	2
Anthropology Major elective		3
Major Elective: ANTH 3850, 3920, 3940, 4920, or 4980		3
UT Social Sciences Core		3
Diversity of Non-U.S.		3
	Hours	**14**
Eighth Term		
Applied Experience: ANTH 4910, 4940, or 4950		3
Related Fields Course		3
Related Fields Course		3
General Elective		3
General Elective		2
	Hours	**14**
	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.

Minor in Anthropology

To complete a minor in Anthropology, students must complete a minimum of 18 hours of coursework: 15 hours of core courses in Anthropology and an additional 3.0 hour elective at the 3000 to 4000 level in Anthropology.

Code	Title	Hours
Required Courses		
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 Subsaharan 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	Ethnographic Fieldwork	
Advanced Course		
Select a 3.0 hour elective at the 3000 to 4000 levels in anthropology.		3
Total Hours		**18**

- 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 African Studies

Angela M. Siner, Director and Faculty Mentor

This minor 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 minor for students who are intellectually curious and passionate about social justice and community activism.

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
Required Courses		
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
Advance Courses		
With the approval of the program adviser, select a minimum of 12 hours of coursework at the 3000/4000 level in Africana Studies		12
Total Hours		**21**

Minor in Disability Studies

The minor in the Program of Disability Studies consists of 9 hours of required courses and at least 9 hours of upper-division electives chosen in consultation with the Disability Studies Program advisor.

The minor in the Program of Disability Studies consists of 9 hours of required courses and at least 9 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 two of the following:		6
DST 3030	Disability Culture	
DST 3040	Disability, Technology, and Society	
DST 3060	U.S. Disability History	
Elective: Select a minimum of 9 hours:		9
DST 2980	Special Topics in Disability Studies	
DST 3030	Disability Culture	
DST 3040	Disability, Technology, and Society	
DST 3060	U.S. Disability History	
DST 3600	Feminist Health Humanities	
DST 3980	Special Topics in Disability Studies	
DST 4000	Global Issues in Disability Studies	

DST 4400	Gender and Disability
DST 4640	Disability Law and Human Rights
DST 4800	Autism and Culture
DST 4940	Internship In Disability Studies
DST 4950	Independent Study
DST 4960	Honors Thesis and Capstone Project
DST 4980	Special Topics in Disability Studies
Total Hours	**18**

- 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.

Minor in Sociology

Requirements for the undergraduate minor must include 18 hours configured as follows:

Code	Title	Hours
SOC 3270	Social Research Methods	3
SOC 3290	Social Statistics	3
SOC 4040	Classical Theory	3
Elective Courses		
Select 9 additional elective hours of sociology courses at the 3000 or 4000 level		9
Total Hours		**18**

- Critical Thinking: Students will demonstrate critical thinking skills.
- Sociological Knowledge: Students will discuss, analyze and apply key concepts in sociology; express, defend, support and/or evaluate sociological ideas clearly and coherently.
- Communication: Students will demonstrate information literacy and communication skills.
- Theoretical Knowledge: Students will apply, critique, debate, and share opinions on multiple theoretical perspectives.
- 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.
- Statistical Knowledge: Students will be able to make inferences and predictions, and interpret findings.
- Personal and Social Responsibility: Students will demonstrate an understanding of personal and social responsibility and apply it to solving various social problems.

Department of Teacher Education

Marcella Kehus, Chair
Gillham Hall Room 2000LL
Phone: 419.530.6119
marcella.kehus@utoledo.edu

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.

accreditation

The Education programs in the Judith Herb College of Arts, Social Sciences, and Education are 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.

Bachelor of Education

Bachelor of Education in Adolescent and Young Adult Education (p. 523)

- 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. 539)

- 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. 542)

- 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 Music

- Initial educator preparation for an Ohio educator license in Mulit-age Education (ages 3-21/grades PreK-12) in Music

(Students interested in pursing Multi-Age education in the arts should look into the Bachelor of Fine Arts [BFA] with an Art Education concentration that is offered in the UToledo Department of Art *(*https://www.utoledo.edu/jhc/art/*).)*

Bachelor of Education in Special Education Intervention Specialist (p. 544)

- 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 (p. 551)

- Initial educator preparation for an Ohio educator license for teaching in an approved career-tech workforce development program

Certificate in Career & Technical Preparation (9CH)

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 acquisition and instruction. Issues related specifically to the needs of English/Multiple Language Learners and learners with dyslexia are introduced.
Term Offered: Spring, Summer, Fall

CI 3430 Phonemic Awareness, Phonics and Fluency
[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.
Term Offered: Spring, Summer, Fall

CI 3460 Literacy Instruction: Comprehension, Vocabulary & Writing
[3 credit hours]
Literacy Instruction: Comprehension, Vocabulary & Writing is a comprehensive exploration of the developmental and instructional implications of reading comprehension, vocabulary acquisition, and writing instruction. Along with these core aspects of reading, major skill domains that contribute to the development of written expression are explored. Principles of explicit and systematic instruction of these core aspects of reading and writing are studied and practiced.
Prerequisites: CI 3400 with a minimum grade of C
Term Offered: Spring, Summer, 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 4550 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: Upper Division with a score of 1
Corequisites: CI 4140, CI 4320, CI 4550, CI 4680, CI 4720
Term Offered: 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
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
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
Corequisites: CI 4050, CI 4060, CI 4070, CI 4080, CI 4150, CI 4160, CI 4170, CI 4180, SPAN 4120
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
Corequisites: CI 4190
Term Offered: 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
Corequisites: CI 4210, CI 4220, CI 4230, CI 4240, CI 4250, CI 4260, CI 4270, CI 4280
Term Offered: Fall

CI 4400 Content Area Literacy In Middle Grades
[3 credit hours]
This course is focused 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. Study of the integration of reading comprehension, writing, oral language and word skill development in content reading and writing. Attention will be given to instructional methods as well as assessment practices.
Prerequisites: Upper Division with a score of 1
Term Offered: Spring, Fall

CI 4470 Literacy Assessment and Remediation
[3 credit hours]
Examine current evidence-based 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: Upper Division with a score of 1 or CI 3400 with a minimum grade of C and CI 3430 with a minimum grade of C and CI 3460 with a minimum grade of C
Term Offered: Spring, Summer, Fall

CI 4490 Content Area Literacy
[3 credit hours]
Study of the integration of reading comprehension, writing, oral language and word skill development and digital literacies in all areas of learning. 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
Corequisites: CI 4190
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: Upper Division with a score of 1
Corequisites: CI 4190
Term Offered: 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
Corequisites: CI 4190
Term Offered: 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 4390 with a minimum grade of C and CI 4260 with a minimum grade of C or CI 4220 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
Corequisites: CI 4730, CI 4740, CI 4760, CI 4790
Term Offered: Spring

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]
Practicum is a supervised opportunity for students to gain experience in the classroom and other settings that provide instruction to children in a pre-kindergarten classroom. Students will focus on lesson plan implementation, differentiated instruction, behavior management strategies and assessment of student learning in their practicums. The course further assists students in acquiring the necessary knowledge and skills needed to function as an educator in a changing and diverse society. Furthermore, the field activities will assist students in the field of early childhood education to: understand learners and the learning processes; gain experience using instructional technology necessary for professional practice; work effectively in both professional and community roles.
Prerequisites: Upper Division with a score of 1
Corequisites: CIEC 4070
Term Offered: Fall

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
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.
Term Offered: Spring, 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 descoveries. Students will learn how to assess the scientific thinking of young children appropriately, using formal and infornal strategies.
Corequisites: CIEC 4480
Term Offered: Spring, Fall

CIEC 4480 Practicum II
[1 credit hour]
Practicum is a supervised opportunity for students to gain experience in the classroom and other settings that provide instruction to children in a Kindergarten through 5th grade classroom. Students will focus on lesson plan implementation, differentiated instruction, behavior management strategies and assessment of student learning in their practicums. The course further assists students in acquiring the necessary knowledge and skills needed to function as an educator in a changing and diverse society. Furthermore, the field activities will assist students in the field of early childhood education to: understand learners and the learning processes; gain experience using of instructional technology necessary for professional practice; work effectively in both professional and community roles. Students in this field practicum will focus their planning on Literacy, Reading Development, Phonics and Science content standards, while practicing integrated curricular design and developmentally appropriate practices for children in Kindergarten through 5th grade.
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 4460 with a minimum grade of C and Upper Division with a score of 1
Corequisites: CIEC 4770
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.
Prerequisites: Upper Division with a score of 1
Term Offered: Spring, Fall

CIEC 4770 Practicum III
[1 credit hour]
Practicum is a supervised opportunity for students to gain experience in the classroom and other settings that provide instruction to children in an early childhood setting. Students will focus on lesson plan implementation, differentiated instruction, behavior management strategies and assessment of student learning in their practicums. The course further assists students in acquiring the necessary knowledge and skills needed to function as an educator in a changing and diverse society. Furthermore, the field activities will assist students in the field of early childhood education to: understand learners and the learning processes; gain experience using of instructional technology necessary for professional practice; work effectively in both professional and community roles.
Prerequisites: CIEC 4480 with a minimum grade of C and Upper Division with a score of 1
Corequisites: CI 4510, 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]
Internship is a supervised opportunity for students to gain experience in the classroom and other settings that provide instruction to children in a primary education setting. Students will focus on lesson plan implementation, differentiated instruction, behavior management strategies and assessment of student learning in their internships. The course further assists students in acquiring the necessary knowledge and skills needed to function as an educator in a changing and diverse society. Furthermore, activities will assist students in the field of primary education to understand learners and the learning processes; gain experience using of instructional technology necessary for professional practice; work effectively in both professional and community roles.
Prerequisites: Upper Division with a score of 1 and CIEC 4770 with a minimum grade of C
Corequisites: CIEC 4900
Term Offered: Spring

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 Undergraudate 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
[3 credit hours]
The pedagogical and management skills introduced in CTE 4010 and CTE 4030 (Summer Workshop) are integrated in an applied setting such as a classroom. Learning profiles; employability skills; community partnerships; school-based and work site learning are foundational for student research, reflection, and inquiry. Students are required to develop and apply pedagogical and management skills related to the career technology setting. During these applications, students will be cognizant of and sensitive to issues of diversity, equity and special populations.
Term Offered: Spring, Fall

CTE 4070 Methods Of Teaching Career And Technical Education II
[3 credit hours]
The pedagogical and management skills introduced in CTE 4050 are integrated in an applied setting such as a classroom. Learning profiles; employability skills; community partnerships; school-based and work site learning are foundational for student research, reflection, and inquiry. Students are required to develop and apply pedagogical and management skills related to the career technology setting. During these applications, students will be cognizant of and sensitive to issues of diversity, equity and special populations.
Term Offered: Spring, Fall

CTE 4110 CTE Program Guidance and Trends
[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 necessary to meet these standards are: a clear mission; operational goals; specific competencies of an assessment system and the latest trends in Career and Technical Education.
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 credit hours]
A planned field experience held in public school classrooms under the direction of University Supervisors. Practicing teacher observed planning, presenting and demonstrating teaching skills and managing the laboratory and classroom. During this planned three (3) semester hours the University of Toledo instructor will visit the classroom and laboratory for practical teacher observation.
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]
This is the first course that introduces the fundamental elements of American Sign Language (ASL) within a cultural context. Emphasis is placed on the development of beginning level ASL communication skills - receptive (listening) and expressive (signing) with vocabulary and grammar. Students will make comparisons and connections using their own culture as they are introduced and exposed to American Deaf culture and history through reading, writing, and short signed conversations. Course instruction and class activities will be conducted in ASL. Upon completion, students will be able to comprehend and respond with grammatical accuracy in expressive American Sign Language and demonstrate cultural awareness.
Term Offered: Summer, Fall

SPED 3680 American Sign Language II
[3 credit hours]
This is a continuation of the introduction of the fundamental elements of American Sign Language (ASL) within a cultural context. Emphasis is placed on the development of beginning level ASL communication skills receptive and expressive with vocabulary and grammar. Students will continue to make comparisons and connections using their own culture as they are Introduced and exposed to American Deaf culture and history through reading, writing, and short signed conversations. Course instruction and class activities will be conducted in ASL. Upon completion, students will be able to comprehend and respond with grammatical accuracy in expressive American Sign Language and demonstrate cultural awareness.
Prerequisites: SPED 3670 with a minimum grade of C
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. Students will gain knowledge and skills in applying additional vocabulary words. Students will advance in the complexity of sentence structure and grammatical structures including classifiers, specifiers, verb modulations and aspects, spatial referencing, pluralization and the importance of facial expressions. Course instruction and class activities will be conducted in ASL.
Prerequisites: SPED 3680 with a minimum grade of C
Term Offered: Summer, Fall

SPED 3700 American Sign Language IV
[4 credit hours]
This course is designed to continue the development of proficiency in using the language and understanding the culture of the Deaf. Student will continue to gain knowledge and skill in applying additional vocabulary words. Students will advance in the complexity of sentence structure and grammatical structures including classifiers, specifiers, verb modulations and aspects, spatial referencing, pluralization, and the importance of facial expressions. Course instruction and class activities will be conducted in ASL.
Prerequisites: 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
Term Offered: Spring, Fall

SPED 4100 Practicum I - Moderate Needs
[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: Upper Division with a score of 1
Corequisites: SPED 4110
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 4200 Practicum II - Mild Needs
[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.
Prerequisites: Upper Division with a score of 1 and SPED 4100 with a minimum grade of D-
Corequisites: SPED 4370
Term Offered: Spring, Fall

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: Spring, 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 4300 Practicum II - Intensive Needs
[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.
Prerequisites: Upper Division with a score of 1 and SPED 4100 with a minimum grade of D-
Corequisites: SPED 4120
Term Offered: Spring, 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 4380 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 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. 523)
- Earth and Space Science (p. 524)
- Integrated Language Arts (p. 525)
- Integrated Mathematics (p. 526)
- Integrated Science (p. 527)
- Integrated Social Studies (p. 529)
- Life Science (p. 530)
- Physics (p. 531)

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:		3
MATH 1180	Reasoning With Mathematics	
MATH 1210	Mathematics For Education Majors I	
MATH 1850	Single Variable Calculus I	
Total Hours		**15**

Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Literacy	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 2600	Introduction To Statistics	3
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4

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
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 Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (OAE) tests and edTPA Portfolio Assessment as 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 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:		3
MATH 1180	Reasoning With Mathematics	
MATH 1210	Mathematics For Education Majors I	
MATH 1850	Single Variable Calculus I	

Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Literacy	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 2600	Introduction To Statistics	3
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	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 Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (OAE) tests and edTPA Portfolio Assessment as 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:

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:		3
MATH 1180	Reasoning With Mathematics	
MATH 1210	Mathematics For Education Majors I	
MATH 1850	Single Variable Calculus I	

Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Literacy	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 Language Arts, select the following:		3
ENGL 3050	Persuasive Writing	3
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
Supporting Subject-matter, select ALL of the following sets:		
Select ONE of the following:		3
ENGL 3010	Creative Writing	
ENGL 4030	Writing Workshop In Nonfictional Prose	
ENGL 4070	Writing Workshop In Poetry	
ENGL 4080	Writing Workshop In Fiction	
Select ONE of the following:		3
COMM 2600	Public Presentations	
COMM 3340	Visual Communication	
COMM 3820	Persuasion Theory	
Select ONE of the following:		3
ENGL 3660	Latino Literature in the U.S.	
ENGL 4610	Nineteenth-Century Latino Literature	
ENGL 4650	African American Writing 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	

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

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 Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (OAE) tests and edTPA Portfolio Assessment as 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:		3
MATH 1180	Reasoning With Mathematics	
MATH 1210	Mathematics For Education Majors I	
MATH 1850	Single Variable Calculus I	

Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Literacy	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 2190	Foundations of Mathematics	3
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
MATH 2850	Elementary Multivariable Calculus	4
MATH 3320	Introduction To Abstract Algebra	3
MATH 1890	Elementary Linear 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 Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (OAE) tests and edTPA Portfolio Assessment as 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:		3
MATH 1180	Reasoning With Mathematics	
MATH 1210	Mathematics For Education Majors I	
MATH 1850	Single Variable Calculus I	

Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Literacy	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 2600	Introduction To Statistics	3
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	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 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 Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (OAE) tests and edTPA Portfolio Assessment as 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:		3
MATH 1180	Reasoning With Mathematics	
MATH 1210	Mathematics For Education Majors I	
MATH 1850	Single Variable Calculus I	

Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Literacy	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
or PSC 1210	American National Government and Civics	
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 Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (OAE) tests and edTPA Portfolio Assessment as 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:		3
MATH 1180	Reasoning With Mathematics	
MATH 1210	Mathematics For Education Majors I	
MATH 1750	Calculus For The Life Sciences With Applications I	

Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Literacy	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

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 Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (OAE) tests and edTPA Portfolio Assessment as 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:

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:		3
MATH 1180	Reasoning With Mathematics	
MATH 1210	Mathematics For Education Majors I	

MATH 1850	Single Variable Calculus I (Required for Math subject concentration)

Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CI 4490	Content Area Literacy	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 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 3610	Statistical Methods I	3
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4

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 Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (OAE) tests and edTPA Portfolio Assessment as specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

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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. 533)
- Earth and Space Science (p. 533)
- Integrated Language Arts (p. 534)
- Integrated Mathematics (p. 535)
- Integrated Science (p. 536)
- Integrated Social Studies (p. 536)
- Life Science (p. 537)
- Physics (p. 538)

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
ENGL 1110	College Composition I	3
MATH 1850	Single Variable Calculus I	4
EDU 1000	Orientation To Education	1
Arts and Humanities Core		3
	Hours	**16**
Second Term		
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
EDU 1700	Introduction to Education	3
MATH 1860	Single Variable Calculus II	4
	Hours	**15**
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 Literacy	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
Elecctive		1
	Hours	**15**
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	**120**

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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.

First Term		Hours
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
ENGL 1110	College Composition I	3
MATH 1850	Single Variable Calculus I	4
EDU 1000	Orientation To Education	1

Arts and Humanities Core		3
	Hours	**16**
Second Term		
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1860	Single Variable Calculus II	4
EDU 1700	Introduction to Education	3
Social Science Core		3
ELECTIVE		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
	Hours	**15**
Fifth Term		
EEES 2100	Fundamentals Of Geology	4
PHYS 1910	Frontiers Of Physics And Astronomy	3
CI 4490	Content Area Literacy	3
CI 4680	The Nature of Science	3
CI 4190	Practicum I	1
Diversity of US		3
	Hours	**17**
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		
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
	Hours	**13**
Eighth Term		
CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9
	Hours	**12**
	Total Hours	**120**

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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
EDU 1000	Orientation To Education	1
MATH 1210	Mathematics For Education Majors I	5
Arts and Humanities Core		3
Social Sciences Core		3
Natural Science Core		3
	Hours	**18**
Second Term		
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
EDU 1700	Introduction to Education	3
MATH 1220	Mathematics For Education Majors II	4
Natural Science Core		3
Natural Science Core Lab		1
	Hours	**14**
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
	Hours	**18**
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
	Hours	**15**
Fifth Term		
ENGL 3600	American Literary Traditions	3
CI 4490	Content Area Literacy	3

CI 4320	Literature For Young Adults	3
CI 4190	Practicum I	1
Language Arts Elective in Writing		3
University Core Elective		3
	Hours	**16**
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		4
	Hours	**17**
Seventh Term		
TSOC 3000	Schooling And Democratic Society	3
CI 4250	Advanced Methods of Teaching AYA English Language Arts	3
CI 4390	Practicum III	1
Language Arts Elective in Non-western Literature		3
Elective		3
	Hours	**13**
Eighth Term		
CI 4730	Seminar Managing the English Language Arts Classroom	3
CI 4930	Internship/Student Teaching	9
	Hours	**12**
	Total Hours	**123**

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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.

First Term		**Hours**
ENGL 1110	College Composition I	3
MATH 1850	Single Variable Calculus I	4
EDU 1000	Orientation To Education	1
Arts and Humanities Core		3
Social Sciences Core		3
Natural Science Core		3
	Hours	**17**
Second Term		
MATH 2190	Foundations of Mathematics	3
MATH 1860	Single Variable Calculus II	4
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
EDU 1700	Introduction to Education	3
	Hours	**13**
Third Term		
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
	Hours	**16**
Fourth Term		
MATH 3450	Fundamentals Of Modern Geometry II	3
MATH 3320	Introduction To Abstract Algebra	3
MATH 1890	Elementary Linear Algebra	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
Social Sciences Core		3
	Hours	**15**
Fifth Term		
MATH 4680	Introduction To Theory Of Probability	3
CI 4490	Content Area Literacy	3
CI 4550	Teaching Problem Solving In Mathematics	3
CI 4190	Practicum I	1
Natural Science Core		3
Natural Science Core Lab		1
	Hours	**14**
Sixth Term		
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
	Hours	**17**
Seventh Term		
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
Elective		3
	Hours	**16**
Eighth Term		
CI 4740	Seminar: Managing the Mathematics Classroom	3
CI 4930	Internship/Student Teaching	9
	Hours	**12**
	Total Hours	**120**

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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.

First Term		Hours
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
ENGL 1110	College Composition I	3
MATH 1850	Single Variable Calculus I	4
EDU 1000	Orientation To Education	1
Arts and Humanities Core		3
	Hours	**16**
Second Term		
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1860	Single Variable Calculus II	4
EDU 1700	Introduction to Education	3
	Hours	**15**
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
	Hours	**16**
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
	Hours	**16**
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 Literacy	3
CI 4680	The Nature of Science	3
CI 4190	Practicum I	1
	Hours	**14**
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
	Hours	**16**
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
	Hours	**16**
Eighth Term		
CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9
	Hours	**12**
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
	Hours	**14**
	Total Hours	**135**

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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.

First Term		Hours
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
	Hours	**16**
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
EDU 1700	Introduction to Education	3
	Hours	**12**
Third Term		
HIST 2000	Methods Seminar - WAC	3
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
Elective		4
	Hours	**19**
Fourth Term		
GEPL 2010	Fundamentals Of Geography	3
PSC 1200 or PSC 1210	American National Government or American National Government and Civics	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
	Hours	**16**
Fifth Term		
HIST 3310	Ethnic America	3
PSC 2700	Principles Of International Relations	3
CI 4490	Content Area Literacy	3
CI 4720	Best Practices for Teaching Social Studies	3
CI 4190	Practicum I	1
Natural Science Core		3
	Hours	**16**
Sixth Term		
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
	Hours	**16**
Seventh Term		
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
	Hours	**13**
Eighth Term		
CI 4790	Seminar: Managing the Social Studies Classroom	3
CI 4930	Internship/Student Teaching	9
	Hours	**12**
	Total Hours	**120**

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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.

First Term		**Hours**
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
	Hours	**16**
Second Term		
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
	Hours	**14**
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		3
	Hours	**16**
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
	Hours	**16**
Fifth Term		
BIOL 3010	Molecular Genetics	3
EEES 3050	General Ecology	3
CI 4490	Content Area Literacy	3
CI 4680	The Nature of Science	3
CI 4190	Practicum I	1
Social Science Core and Diversity in US		3
	Hours	**16**
Sixth Term		
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
	Hours	**14**
Seventh Term		
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
Elective		3
	Hours	**16**
Eighth Term		
CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9
	Hours	**12**
	Total Hours	**120**

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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.

First Term		**Hours**
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
ENGL 1110	College Composition I	3
EDU 1000	Orientation To Education	1
MATH 1850	Single Variable Calculus I	4
Arts and Humanities Core		3
	Hours	**16**
Second Term		
PHYS 1910	Frontiers Of Physics And Astronomy	3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1860	Single Variable Calculus II	4
EDU 1700	Introduction to Education	3
	Hours	**13**
Third Term		
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
	Hours	**16**
Fourth Term		
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
	Hours	**15**
Fifth Term		
PHYS 3310	Modern Physics I	3
MATH 3610	Statistical Methods I	3
CI 4490	Content Area Literacy	3
CI 4680	The Nature of Science	3
CI 4190	Practicum I	1
Diversity in US Core		3
	Hours	**16**
Sixth Term		
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
	Hours	**16**

Seventh Term		
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
Elective		3
	Hours	**16**
Eighth Term		
CI 4760	Seminar: Managing the Science Classroom	3
CI 4930	Internship/Student Teaching	9
	Hours	**12**
	Total Hours	**120**

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- PLO 1: Learner Development Learning Differences: Apply knowledge of adolescent cognitive, linguistic, social, emotional, and physical development to design age-appropriate instruction and learning experiences that support equitable access to learning.
- PLO 2: Learning Environments: Create safe, supportive, and culturally responsive learning environments that promote collaboration, engagement, and self-motivation among grades 7–12 learners.
- PLO 3: Content Knowledge Application: Demonstrate deep understanding of central concepts, tools of inquiry, and structures of secondary-level disciplines, and apply this knowledge to design equitable and meaningful learning experiences.
- PLO 4: Instructional Practice: Plan and implement instruction using multiple strategies and technologies to support rigorous learning goals, prepare learners for college and career readiness, differentiate instruction, and foster critical thinking and creativity.
- PLO 5: Assessment Data-Informed Practice: Use formative and summative assessments to monitor learner progress, guide instructional decisions, and engage learners in goal setting for postsecondary success.
- PLO 6: Professional Responsibility Ethics: Engage in ongoing professional learning, reflect on practice, act ethically, and collaborate with families, colleagues, and community partners to support learner growth.

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
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
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1210	Mathematics For Education Majors I	5
MATH 1220	Mathematics For Education Majors II	4

Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
CIEC 4750	Developmental Assessment In Early Childhood	3
EDP 4240	Classroom Engagement and Behavioral Supports	3
ENGL 1110	College Composition I	3
TSOC 2000	Diversity In Contemporary Society	3

Code	Title	Hours
Science of Reading:		
All courses completed with a C or higher. Courses may not be transferred from another institution.		
Select all of the following:		
CI 3400	Foundations of Literacy	3
CI 3430	Phonemic Awareness, Phonics and Fluency	3
CI 3460	Literacy Instruction: Comprehension, Vocabulary & Writing	3

Complete during professional education:	
CI 4470	Literacy Assessment and Remediation

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
or PSC 1210	American National Government and Civics	
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 4470	Literacy Assessment and Remediation	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 Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (http://www.oh.nesinc.com/) (OAE) tests and edTPA Portfolio Assessment as 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	5
EDU 1000	Orientation To Education	1
Non-US Diversity		3
	Hours	**18**
Second Term		
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1220	Mathematics For Education Majors II	4
TSOC 2000	Diversity In Contemporary Society	3
EDU 1700	Introduction to Education	3
	Hours	**13**
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
CIEC 3200	Early Childhood Education: Philosophy And Practice	3
Elective		2
	Hours	**15**
Fourth Term		
CI 3400	Foundations of Literacy	3
EDP 3210	Child Development For Early Childhood Educators	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
CIEC 3350	Child, Family & Public Policy In Early Childhood	3
CIEC 4340	Infant/Toddler Curriculum	3
	Hours	**15**
Fifth Term		
Subject-matter Elective in Social Sciences		3
Subject-matter Elective in the Arts		3
CI 3430	Phonemic Awareness, Phonics and Fluency	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
	Hours	**16**
Sixth Term		
Subject-matter Elective in Social Studies		3
EDP 4240	Classroom Engagement and Behavioral Supports	3
CI 3460	Literacy Instruction: Comprehension, Vocabulary & Writing	3
CIEC 4460	Science Methods For Early Childhood Education	3
CIEC 4480	Practicum II	1
Elective		2
	Hours	**15**
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
	Hours	**16**
Eighth Term		
CIEC 4900	Internship/Student Teaching Seminar	3
CIEC 4930	Internship/Student Teaching in Primary Education	9
	Hours	**12**
	Total Hours	**120**

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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
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:		3
MATH 1180	Reasoning With Mathematics	
MATH 1210	Mathematics For Education Majors I	
MATH 1850	Single Variable Calculus I (Required for Math concentration)	

Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
EDP 4240	Classroom Engagement and Behavioral Supports	3
TSOC 3000	Schooling And Democratic Society	3
ENGL 1110	College Composition I	3

Science of Reading: All courses completed with a C or higher. Courses may not be transferred from another institution.

Code	Title	Hours
Select ALL of the following:		
CI 3400	Foundations of Literacy	3
CI 3430	Phonemic Awareness, Phonics and Fluency	3
CI 3460	Literacy Instruction: Comprehension, Vocabulary & Writing	3
Complete during Professional Education:		
CI 4470	Literacy Assessment and Remediation	

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 2600	Introduction To Statistics	3
MATH 1850	Single Variable Calculus I	4
MATH 1860	Single Variable Calculus II	4
MATH 1890	Elementary Linear Algebra	3
MATH 2620	Discrete Probability	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
or PSC 1210	American National Government and Civics	
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 4470	Literacy Assessment and Remediation	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 4150	Methods of Teaching AYA English Language Arts	3
CI 4250	Advanced Methods of Teaching AYA English Language Arts	3
Mathematics		
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
Science		
CI 4680	The Nature of Science	3
CI 4170	Methods of Teaching AYA Science	3
CI 4270	Advanced Methods of Teaching AYA Science	3
Social Studies		
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 4930	Internship/Student Teaching	9
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 Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (http://www.oh.nesinc.com/) (OAE) tests and edTPA Portfolio Assessment as 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	5
EDU 1000	Orientation To Education	1
University Core		3
	Hours	**18**
Second Term		
Subject A		3
Subject B		3
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
EDU 1700	Introduction to Education	3

University Core		3
	Hours	**15**
Third Term		
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
	Hours	**16**
Fourth Term		
Subject A		3
Subject B		3
CI 3430	Phonemic Awareness, Phonics and Fluency	3
CI 3460	Literacy Instruction: Comprehension, Vocabulary & Writing	3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
	Hours	**15**
Fifth Term		
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 4150/4160/4170/4180		3
Methods B: CI 4150/4160/4170/4180		3
CI 4290	Practicum II	1
	Hours	**16**
Seventh Term		
Subject B		3
TSOC 3000	Schooling And Democratic Society	3
Adv. Methods A: CI 4250/4260/4270/4280		3
Adv. Methods B: CI 4250/4260/4270/4280		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	**124**

- PLO 1: Learner Development Learning Differences: Apply knowledge of middle childhood developmental stages to design instruction and learning experiences that bridge elementary and adolescent needs, supporting equitable access to learning.
- PLO 2: Learning Environments: Create safe, supportive, and culturally responsive learning environments that promote collaboration, engagement, and self-motivation among grades 4–9 learners.
- PLO 3: Content Knowledge Application: Demonstrate deep understanding of central concepts, tools of inquiry, and structures of middle-level disciplines, and apply this knowledge to design equitable and meaningful learning experiences.
- PLO 4: Instructional Practice: Plan and implement instruction using multiple strategies and technologies to support rigorous learning goals, address transitional needs between elementary and secondary education, differentiate instruction, and foster critical thinking and creativity.
- PLO 5: Assessment Data-Informed Practice: Use formative and summative assessments to monitor learner progress, guide instructional decisions, and engage learners in age-appropriate self-assessment and goal setting.
- PLO 6: Professional Responsibility Ethics: Engage in ongoing professional learning, reflect on practice, act ethically, and collaborate with families, colleagues, and community partners to support learner growth.

BE in Special Education Intervention Specialist

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 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
MATH 1180	Reasoning With Mathematics	3

Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
ENGL 1110	College Composition I	3
TSOC 3000	Schooling And Democratic Society	3
EDP 3290	Life Span Development	3
SPED 3670	American Sign Language I	3
AED 4140	Art Education For The Special Child	3
EDP 4240	Classroom Engagement and Behavioral Supports	3

Science of Reading: All courses completed with a C or higher. Courses may not be transferred from another institution.

Code	Title	Hours
Select All of the following:		
CI 3400	Foundations of Literacy	3
CI 3430	Phonemic Awareness, Phonics and Fluency	3
CI 3460	Literacy Instruction: Comprehension, Vocabulary & Writing	3
Completed During Professional Education		
CI 4470	Literacy Assessment and Remediation	

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 Writing 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
or PSC 1210	American National Government and Civics	
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 4470	Literacy Assessment and Remediation	3
SPED 4080	Curriculum Adaptations & Strategies In Early Childhood Education	3
SPED 4100	Practicum I - Moderate Needs	1
SPED 4110	Curriculum And Methodology For Students With Moderate Educational Needs	3
SPED 4380	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		*4*
SPED 4370	Curriculum And Methods For Students With Mild Educational Needs	
SPED 4200	Practicum II - Mild Needs	
Moderate-Intensive		*7*
SPED 4120	Curriculum And Methodology For Students With Intensive Educational Needs	
SPED 4300	Practicum II - Intensive Needs	
SPED 4210	AAC for Young Children with Disabilities	
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

Additional Requirements

Current Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (OAE) tests and edTPA Portfolio Assessment as specified tests specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

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
	Hours	**16**
Second Term		
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
University Core		3
Elective		2
	Hours	**14**
Third Term		
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
	Hours	**13**
Fourth Term		
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	Phonemic Awareness, Phonics and Fluency	3
Natural Science Core		3
	Hours	**15**
Fifth Term		
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 I - Moderate Needs	1
TSOC 3000	Schooling And Democratic Society	3
	Hours	**16**

Sixth Term		
CI 3460	Literacy Instruction: Comprehension, Vocabulary & Writing	3
EDP 4240	Classroom Engagement and Behavioral Supports	3
SPED 4340	Effective Management Of Students With Special Needs In Educational Settings	3
University Core		3
Select ONE of the following sets:		4
Mild Moderate Needs		
SPED 4120	Curriculum And Methodology For Students With Intensive Educational Needs	
SPED 4200	Practicum II - Mild Needs	
Moderate Intensive Needs		
SPED 4370	Curriculum And Methods For Students With Mild Educational Needs	
SPED 4300	Practicum II - Intensive Needs	
	Hours	**16**
Seventh Term		
RESM 4200	Classroom Assessment	3
CI 4470	Literacy Assessment and Remediation	3
SPED 4080	Curriculum Adaptations & Strategies In Early Childhood Education	3
SPED 4380	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)	3
	Hours	**18**
Eighth Term		
SPED 4600	Professional Reflective Seminar	3
SPED 4930	Internship/Student Teaching In Special Education	9
	Hours	**12**
	Total Hours	**120**

- PLO 1: Learner Development Learning Differences: Apply knowledge of exceptionalities and diverse developmental needs to design individualized and inclusive instruction that supports equitable access to learning.
- PLO 2: Learning Environments: Create safe, supportive, and culturally responsive learning environments that promote collaboration, engagement, and self-motivation among learners with disabilities across P–12 settings.
- PLO 3: Content Knowledge Application: Demonstrate deep understanding of central concepts, tools of inquiry, and structures of special education and general curriculum, and apply this knowledge to design equitable and meaningful learning experiences.
- PLO 4: Instructional Practice: Plan and implement instruction using multiple strategies and technologies to support rigorous learning goals, adapt curriculum for diverse needs, differentiate instruction, and foster critical thinking and creativity.
- PLO 5: Assessment Data-Informed Practice Use formative and summative assessments to monitor learner progress, guide instructional decisions, and engage learners in individualized goal setting and progress monitoring.
- PLO 6: Professional Responsibility Ethics: Engage in ongoing professional learning, reflect on practice, act ethically, and collaborate with families, colleagues, and related service providers to support learner growth.
- 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.

Bachelor of Education in Music

For the Bachelor of Education in Music, 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
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
MATH 1180	Reasoning With Mathematics	3
Total Hours		**17**

Supporting Coursework

Code	Title	Hours
Select the following:		
EDU 1000	Orientation To Education	1
EDP 3290	Life Span Development	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
Total Hours		**16**

Science of Reading: All courses completed with a C or higher. Courses may not be transferred from another institution.

Code	Title	Hours
CI 4490	Content Area Literacy	3
Total Hours		**3**

Subject-matter Specialization: A minimum GPA of 2.7 in the specialization is required.

Code	Title	Hours
Core Subject-matter in Music, select the following:		
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 Track		
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	Opera Workshop	1
Large Ensembles		
Select 7 credits from 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
Instrumental Track		
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
Large Ensembles		
Select 7 credits from the following		
MUS 3010	University Band (must be taken for a minimum of two credits)	1
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 faulty advisor approval		
Total Hours		**75**

Admission to Professional Education: Admission is required prior to enrolling in Professional Education courses.

- Enrolled as a regular student in Bachelor of Education in Music
- 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	Elementary And Secondary School Instrument Methods For Music Majors	3
Professional Education Internship*		
MED 4900	Student Teaching Seminar	2
MED 4930	Student Teaching (6 credits secondary, 6 credits elementary)	12
Total Hours		**23**

*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 Ohio preservice teacher permit or other permit as specified by The State of Ohio are required prior to beginning classroom experiences.

Acceptable scores on all Ohio Assessment for Educators (http://www.oh.nesinc.com/) (OAE) tests and edTPA Portfolio Assessment as specified by The State of Ohio for the licensure area are required prior to applying for Ohio teaching license.

Below is a guide for developing a plan of study for the Bachelor of Education in Music. 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
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
	Hours	**19**
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
	Hours	**19**
Third Term		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2570	Piano Class For Music Majors III	1
EDU 1700	Introduction to Education	3
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
	Hours	**20**
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
	Hours	**19**
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 1560	Instrumental Class	3
MUS 3800	Applied Music	2
Large Ensemble		1
CI 4490	Content Area Literacy	3
EDP 3290	Life Span Development	3
MED 1000	Music Education Lab	0
MED 3310	Music For Children	3
	Hours	**20**
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	Elementary And Secondary School Instrument Methods For Music Majors	3
University Core Elective		3
Social Science Core		3
	Hours	**19**
Seventh Term		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 3810	Recital	1
MUS 4800	Applied Music	2
Large Ensemble		1
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
	Hours	**14**
Eighth Term		
MED 4900	Student Teaching Seminar	2
MED 4930	Student Teaching (elementary)	6
MED 4930	Student Teaching (secondary)	6
	Hours	**14**
	Total Hours	**144**

Multi-Age Education (Pre K-12) - Music- Instrumental Track, 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 3010	University Band	1
ENGL 1110	College Composition I	3
MATH 1180	Reasoning With Mathematics	3
	Hours	**18**
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	2
MUS 2420	Cultures And Music Of Non-Western Styles	3
Large Ensemble		1
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Arts and Humanities Core		3
SPED 2040	Perspectives In The Field Of Exceptionalities	3
	Hours	**20**
Third Term		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 2570	Piano Class For Music Majors III	1
EDU 1700	Introduction to Education	3
MUS 2610	Music Theory And Ear Training III	4
MUS 2800	Applied Music	2
MUS 3010	University Band	1
MUS 3410	Music History And Literature II	3
EDP 3200	Applied Psychology For Teachers	3
MED 1000	Music Education Lab	0
Social Science Core		3
	Hours	**20**
Fourth Term		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1530	Brass Class	2
MUS 2620	Music Theory And Ear Training IV	4
MUS 2800	Applied Music	2
MUS 3420	Music History And Literature III	3
Large Ensemble		1
MED 1000	Music Education Lab	0
MED 3000	Foundations Of Music Education	2
Natural Sciences Core		3
Natural Science Core Lab		1
MUS 1100	Introduction To Music Technology	1
	Hours	**19**
Fifth Term		
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
MED 1000	Music Education Lab	0
MED 3310	Music For Children	3
Social Sciences Core		3
MUS 1500	String Class	2
	Hours	**18**
Sixth Term		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 1510	Percussion Class	2
MUS 3630	Instrumentation	3
MUS 3520	Instrumental Conducting	2
MUS 3800	Applied Music	2
MED 1000	Music Education Lab	0
MED 3300	Elementary And Secondary School Instrument Methods For Music Majors	3
University Core Elective		3
	Hours	**15**
Seventh Term		
MUS 1000	Performance Laboratory	0
MUS 1010	Concert Attendance	0
MUS 3810	Recital	1
MUS 4800	Applied Music	2
Large Ensemble		1
CI 4490	Content Area Literacy	3
TSOC 3000	Schooling And Democratic Society	3
MED 1000	Music Education Lab	0
MED 3320	Secondary School Vocal Methods For Music Majors	3
University Core Elective		3
	Hours	**16**
Eighth Term		
MED 4900	Student Teaching Seminar	2
MED 4930	Student Teaching (elementary)	6
MED 4930	Student Teaching (secondary)	6
	Hours	**14**
	Total Hours	**140**

- PLO 1: Learner Development Learning Differences. Apply knowledge of developmental stages across multiple age ranges to design music-based, developmentally appropriate instruction that supports equitable access to learning.
- PLO 2: Learning Environments. Create safe, supportive, and culturally responsive learning environments that promote collaboration, engagement, and self-motivation among learners in vocal and instrumental music settings across diverse grade levels.
- PLO 3: Content Knowledge Application. Demonstrate deep understanding of central concepts, tools of inquiry, and structures of music theory, performance, and pedagogy, and apply this knowledge to design equitable and meaningful learning experiences.
- PLO 4: Instructional Practice. Plan and implement instruction using multiple strategies and technologies to support rigorous learning goals, integrate performance, composition, and music literacy, differentiate instruction, and foster critical thinking and creativity.
- PLO 5: Assessment Data-Informed Practice. Use formative and summative assessments to monitor learner progress, guide instructional decisions, and engage learners in self-assessment of musical growth and goal setting.
- PLO 6: Professional Responsibility Ethics. Engage in ongoing professional learning, reflect on practice, act ethically, and collaborate with families, colleagues, and music community partners to support learner growth.

Career & Technical Education Certificate

This undergraduate certificate is designed for individuals seeking licensure in career-technical education for teaching in an approved career-tech workforce development program. Pathways include agriculture, health careers, business, family and consumer science careers, marketing, or career-technical.

The licensure pathway is 24 semester hours across two years with courses in summer, and afternoons in fall and spring.

ADMISSION REQUIREMENTS

In addition to meeting the admission requirements of The University of Toledo and the Judith Herb College of Arts, Social Sciences and Education, admission to the certificate program requires the following:

- Completed Initial CTE-37 Form from the Ohio Department of Education & Workforce with signatures from your school district

REQUIREMENTS FOR THE CERTIFICATE

For the undergraduate certificate program, students must complete the following program requirements:

Code	Title	Hours
CTE 4010	Teaching Occupational Skills	3
CTE 4030	Teaching Occupational Knowledge	3
CTE 4050	Methods Of Teaching Career And Technical Education I	3
CTE 4070	Methods Of Teaching Career And Technical Education II	3
CTE 4110	CTE Program Guidance and Trends	3
CTE 4930	Supervised Teaching (take this 3-credit hour course twice over two semesters)	6
CI 4490	Content Area Literacy	3
Total Hours		**24**

All coursework and requirements of the certificate must be taken within a four-year period immediately preceding the date the degree is awarded.

GUIDE FOR DEVELOPING A PLAN OF STUDY

Below is a guide for developing a Plan of Study for the certificate. Students should review their degree audit and work with their faculty advisor to identify specific courses to fulfill program requirements.

First Term		Hours
CTE 4010	Teaching Occupational Skills	3
CTE 4030	Teaching Occupational Knowledge	3
	Hours	**6**
Second Term		
CTE 4050	Methods Of Teaching Career And Technical Education I	3
CTE 4930	Supervised Teaching	3
	Hours	**6**
Third Term		
CTE 4070	Methods Of Teaching Career And Technical Education II	3
CTE 4930	Supervised Teaching	3
	Hours	**6**
Fourth Term		
CI 4490	Content Area Literacy	3
	Hours	**3**
Fifth Term		
CTE 4110	CTE Program Guidance and Trends	3
	Hours	**3**
	Total Hours	**24**

- PLO 1 CLASSROOM ENVIRONMENT: Candidates create and addresses the classroom environment. The focus is on creating and maintaining a safe and positive classroom climate, respecting the diversity of students and promoting high expectations. Other areas of study include student motivation, positive behavior and collaborative social interaction. 1.1. Create safe and respectful learning environments where teachers and students safely operate equipment and follow emergency protocols (e.g., local and OSHA regulations, equipment operation and proper disposal of hazardous waste.) 1.2. Model respect for students' diverse cultures, language skills and experiences. 1.3. Motivate students to work productively and assume responsibility for their learning.
- PLO 2 CURRICULUM: Candidates create short-term and long-term, standards-based, instructional plans based on students' varying learning needs. Teachers learn to develop a course syllabus, a course of study, unit plans and lesson plans. In addition, teachers learn ways to integrate employability skills, challenging technical and academic content, and career-technical student organizations into instruction. 2.1. Collaborate with postsecondary institutions to create in-demand career pathways and inform students of college credit opportunities. 2.2. Inform and encourage students to obtain and maintain industry credentials related to their career pathways. 2.3. Develop curriculum documents (e.g., course syllabus, course of study, unit plans and lesson plans) that meet the needs of all students by utilizing Depth of Knowledge (DOK) Levels. 2.4. Integrate competencies for relevant industry-recognized credentials into lesson plans. 2.5. Develop intellectually challenging projects that require higher-order reasoning and problem-solving skills. 2.6. Utilize career-technical student organizations to reinforce in-class instruction and promote 21st century skills. 2.7. Modify instruction to support all students in achieving their full learning potential. 2.8. Integrate employability skills as well as challenging technical content and knowledge into daily instruction. 2.9. Integrate challenging academic content and knowledge into daily instruction.
- PLO 3 INSTRUCTION: Candidates create and utilize instructional strategies that actively engage students in developing problem-solving, critical-thinking and teamwork skills. Teachers learn how to utilize each student's unique characteristics to develop a positive rapport. 3.1. Use content-specific instructional strategies to teach main concepts and skills effectively. 3.2. Create learning situations where students work independently, collaboratively and as a whole class, while providing opportunities for individual assessment. 3.3. Integrate the main components of a career-technical education program into instruction (i.e., laboratory, classroom and career-technical student organizations). 3.4. Identify the domains of learning (i.e., cognitive, affective and psychomotor) and how they relate to the career-technical education classroom and laboratory. 3.5. Demonstrate instructional strategies that foster positive relationships with students. 3.6. Utilize business and industry to develop and implement experiential and work-based learning opportunities for students that enhance classroom and laboratory learning. 3.7. Demonstrate how inquiry-based instructional strategies are a prominent part of teaching practices.
- PLO 4 ASSESSMENT: Candidates understand and use formal and informal assessment strategies to evaluate students' learning and progress. Teachers learn the importance of providing quality feedback through these assessments in a timely manner to improve student learning. There is a focus on how 4.1. Select, develop and use a variety of diagnostic, formative and summative assessments to monitor student learning and progress. 4.2. Provide opportunities for students to self-assess their learning and set individual goals. 4.3. Analyze student data to reflect, self-assess and modify the teaching-learning cycle (e.g., plan, teach, assess, revise and reteach). 4.4. Make assessment results available to students and stakeholders in a format that is understandable and maintains appropriate privacy requirements.
- PLO 5 PROGRAM REVIEW: Candidates examine how to use data for continual program improvement. 5.1. Use Quality Program Standards and program-level data to review the career-technical education program and recommend improvements. 5.2. Establish, implement and maintain a required advisory committee aligned with the program pathway. 5.3. Utilize the advisory committee's recommendations to assist with program review and improvement.
- PLO 6 RECRUITMENT: Candidates understand student recruitment for the career-technical program. There is a focus on collaborating with parents, students and local business leaders as well as gaining their support in the recruitment process. 6.1. Articulate to stakeholders (e.g., parents, students, business leaders and associated school personnel) how career-technical education prepares students for successful employment and ongoing education. 6.2. Actively recruit for and market the career-technical education program to all

populations, including non-traditional students (e.g., recruit males for predominantly female occupations and vice versa). 6.3. Collaborate with business and other community organizations to promote positive student learning and work-based learning experiences.

- PLO 7 PROFESSIONALISM: Candidates assume responsibility and examine professionalism relating to the educational environment, with a specific look at the teacher's relationships with students, parents, community, co-workers and administration. 7.1. Adhere to established ethics, policies and legal codes of professional conduct. 7.2. Participate in ongoing education and professional development to stay current and obtain advanced training, industry credentials and licensure requirements. 7.3. Communicate professionally, clearly and effectively. 7.4. Collaborate with district teachers and administrators on non-teaching responsibilities (e.g., serving on committees, attending staff and individualized education program meetings, supervising students during non-teaching times.) 7.5. Participate in related local, state and national professional associations.

Career & Technical Preparation (9CH), Certificate

Code	Title	Hours
CTE 4050	Methods Of Teaching Career And Technical Education I	3
CTE 4070	Methods Of Teaching Career And Technical Education II	3
CTE 4930	Supervised Teaching	3
Total Hours		**9**

- CLASSROOM ENVIRONMENT: Candidates create and addresses the classroom environment. The focus is on creating and maintaining a safe and positive classroom climate, respecting the diversity of students and promoting high expectations. Other areas of study include student motivation, positive behavior and collaborative social interaction. 1.1. Create safe and respectful learning environments where teachers and students safely operate equipment and follow emergency protocols (e.g., local and OSHA regulations, equipment operation and proper disposal of hazardous waste.) 1.2. Model respect for students' diverse cultures, language skills and experiences. 1.3. Motivate students to work productively and assume responsibility for their learning.
- CURRICULUM: Candidates create short-term and long-term, standards-based, instructional plans based on students' varying learning needs. Teachers learn to develop a course syllabus, a course of study, unit plans and lesson plans. In addition, teachers learn ways to integrate employability skills, challenging technical and academic content, and career-technical student organizations into instruction.2.1. Collaborate with postsecondary institutions to create in-demand career pathways and inform students of college credit opportunities. 2.2. Inform and encourage students to obtain and maintain industry credentials related to their career pathways. 2.3. Develop curriculum documents (e.g., course syllabus, course of study, unit plans and lesson plans) that meet the needs of all students by utilizing Depth of Knowledge (DOK) Levels. 2.4. Integrate competencies for relevant industry-recognized credentials into lesson plans. 2.5. Develop intellectually challenging projects that require higher-order reasoning and problem-solving skills. 2.6. Utilize career-technical student organizations to reinforce in-class instruction and promote 21st century skills. 2.7. Modify instruction to support all students in achieving their full learning potential. 2.8. Integrate employability skills as well as challenging technical content and knowledge into daily instruction. 2.9. Integrate challenging academic content and knowledge into daily instruction.
- INSTRUCTION: Candidates create and utilize instructional strategies that actively engage students in developing problem-solving, critical-thinking and teamwork skills. Teachers learn how to utilize each student's unique characteristics to develop a positive rapport. 3.1. Use content-specific instructional strategies to teach main concepts and skills effectively. 3.2. Create learning situations where students work independently, collaboratively and as a whole class, while providing opportunities for individual assessment. 3.3. Integrate the main components of a career-technical education program into instruction (i.e., laboratory, classroom and career-technical student organizations). 3.4. Identify the domains of learning (i.e., cognitive, affective and psychomotor) and how they relate to the career-technical education classroom and laboratory. 3.5. Demonstrate instructional strategies that foster positive relationships with students. 3.6. Utilize business and industry to develop and implement experiential and work-based learning opportunities for students that enhance classroom and laboratory learning. 3.7. Demonstrate how inquiry-based instructional strategies are a prominent part of teaching practices.
- ASSESSMENT: Candidates understand and use formal and informal assessment strategies to evaluate students' learning and progress. Teachers learn the importance of providing quality\nfeedback through these assessments in a timely manner to improve student learning. There is a focus on how 4.1. Select, develop and use a variety of diagnostic, formative and summative assessments to monitor student learning and progress. 4.2. Provide opportunities for students to self-assess their learning and set individual goals. 4.3. Analyze student data to reflect, self-assess and modify the teaching-learning cycle (e.g., plan, teach, assess, revise and reteach). 4.4. Make assessment results available to students and stakeholders in a format that is understandable and maintains appropriate privacy requirements.
- PROGRAM REVIEW: Candidates examine how to use data for continual program improvement. 5.1. Use Quality Program Standards and program-level data to review the career-technical education program and recommend improvements. 5.2. Establish, implement and maintain a required advisory committee aligned with the program pathway. 5.3. Utilize the advisory committee's recommendations to assist with program review and improvement.
- RECRUITMENT: Candidates understand student recruitment for the career-technical program. There is a focus on collaborating with parents, students and local business leaders as well as gaining their support in the recruitment process. 6.1. Articulate to stakeholders (e.g., parents, students, business leaders and associated school personnel) how career-technical education prepares students for successful employment and ongoing education. 6.2. Actively recruit for and market the career-technical education program to all populations, including non-traditional students (e.g., recruit males for predominantly female occupations and vice versa). 6.3. Collaborate with business and other community organizations to promote positive student learning and work-based learning experiences.

- PROFESSIONALISM: Candidates assume responsibility and examine professionalism relating to the educational environment, with a specific look at the teacher's relationships with students, parents, community, co-workers and administration. 7.1. Adhere to established ethics, policies and legal codes of professional conduct. 7.2. Participate in ongoing education and professional development to stay current and obtain advanced training, industry credentials and licensure requirements. 7.3. Communicate professionally, clearly and effectively. 7.4. Collaborate with district teachers and administrators on non-teaching responsibilities (e.g., serving on committees, attending staff and individualized education program meetings, supervising students during non-teaching times.) 7.5. Participate in related local, state and national professional associations.

Department of Theatre and Film

ACCREDITING BODY: National Association of Schools of Theatre (NAST)

Stephen Sakowski - Chair and THR Advisor
Matt Foss - THR Advisor
Matt Yockey -FILM Advisor
Holly Hey - FILM Advisor
Tammy Kinsey, 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. 559)
- B.A. in Theatre (p. 561)
- Minor in Cinema Studies (p. 565)
- Minor in Film/Video (p. 566)
- Minor in Stage and Screen Performance (p. 566)
- Minor in Theatre Arts (p. 566)
- Minor in Theatre Design and Technology (p. 567)
- Post-production for Film and Video Certificate (https://catalog.utoledo.edu/undergraduate/arts-social-sciences-education/theatre-film/post-production-film-video-certificate/)

Student may also be interested in these minor options:

- Interdisciplinary Minors (p. 599)
  - Minor in Digital Arts and Visual Communication (p. 599)
  - Minor in Documentary Production and Practice (p. 600)
  - Minor in Sound Production and Design (p. 600)
  - Minor in Visual Effects and Animation (p. 600)

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
OT36 Arts and Humanities

FILM 2230 Creative Approaches to Cinema
[3 credit hours]
This class is a filmmaking fundamentals course that introduces the entire film production process, covering core skills in camera basics, grip and electrical basics, and the basics of scriptwriting, pre-production planning, production (cinematography and sound), and post-production (editing). Film/Video majors must have taken or be co-enrolled in Critical Approaches to Cinema, Film 2330, 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: 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: Styles and Techniques
[3 credit hours]
A production/seminar course focusing on directing dramatic scenes for camera with emphasis on directorial style. 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

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 Cinema and Popular Culture Studies
[3 credit hours]
Covering issues concerned with cinema and popular culture history, theory, and criticism. Interrelationships will be examined between the transmission of popular culture content through cinema, television, radio, print, and/or the Internet. Particular focus of the course content 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, Fall

FILM 4310 Narrative Film Production
[3 credit hours]
A production/seminar course focused on advanced production techniques for narrative filmmaking. Emphasis on double system/sync-sound recording, lighting and grip, set-etiquette, and editing 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 with a minimum grade of C or FILM 3560 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 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 1080 Theatre Technology I
[3 credit hours]
An introduction to theory and practice in stage lighting, sound, scenic design and construction using the tools and techniques of theatre including properties and scenic painting. Students will gain knowledge through lectures, and readings with practical laboratory experience as well as use these tools, equipment and techniques in production crews on department productions.
Term Offered: Fall

THR 1090 Theatre Technology II
[3 credit hours]
The Continued exploration into theory and practice in stage lighting, sound, scenic design and construction using the tools and techniques of theatre including properties and scenic painting. Students will gain and develop the knowledge through lectures, and readings with practical laboratory experience as well as use these tools, equipment and techniques in production crews on department productions.
Prerequisites: THR 1080 with a minimum grade of D-
Term Offered: Spring

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, Fall

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. In this course, students use the knowledge of theatre history that they attain to develop innovative approaches to all areas of theatrical production in thoroughly-researched and properly-cited papers.
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, Fall

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 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, Summer, 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 Screen Acting	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	Cinema and Popular Culture Studies	3
or FILM 4310	Narrative Film Production	
FILM 4320	Film/Video Workshop [1]	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	
Total Hours		**48**

[1] 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
	Hours	**16**
Second Term		
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
	Hours	**16**
Third Term		
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 [1]		3
	Hours	**16**
Fourth Term		
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 [1]		3
	Hours	**16**
Fifth Term		
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 [1]		3
	Hours	**15**
Sixth Term		
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
	Hours	**15**

Seventh Term		
FILM 3200	Directing Screen Acting	3
FILM 4330	Critical Approaches to Cinema III	3
Related Fields or minor course [1]		6
Non-US Diversity		3
	Hours	**15**
Eighth Term		
FILM 4310 or FILM 4220	Narrative Film Production or Cinema and Popular Culture Studies	3
FILM 4320	Film/Video Workshop	3
Elective		2
Related or minor course [1]		3
	Hours	**11**
	Total Hours	**120**

[1] 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:

1. **Admission:**
   a. Minimum GPA of 3.3 in film/video courses;
   b. Minimum cumulative GPA of 3.0; and
   c. Completion of 12 hours in film/video
2. **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 Performance
- 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 Performance (p. 561)", "Theatre Arts (p. 562)" or "Theatre Design & Technology (p. 562)", for a total of 45 hours:

Theatre - Stage and Screen Performance Concentration, BA

Code	Title	Hours
Required Courses		
THR 1050	Costume Technology	3
THR 1080	Theatre Technology I	3
THR 1090	Theatre Technology II	3
THR 2000	Theatre Production Practicum [1]	0
THR 2050	Theatre Shop Practicum [1]	0
THR 2100	Departmental Ensemble [2]	0
THR 2200	Script Analysis	3
THR 2400	Fundamentals of Design	3
THR 2600	Acting I	3
THR 2660	Acting for the Camera I	3
THR 3150	Theatre History - Ancient to Contemporary - WAC	3
THR 3710	Directing I	3
THR 4150	Theatre Studies	3
Total Hours		**30**

Students also select one concentration for 15 additional hours:

Code	Title	Hours
Concentration in Stage and Screen Performance		
Required		
THR 3250	Theatre and Stage Management	3
THR 3600	Acting II	3
THR 3340	Acting for the Camera II	3
Select 6 hours from:		*6*
THR 2020	Theatre Performance Practicum	1-3
THR 2420	Stage Makeup	3
THR 2640	Voice And Movement	3
THR 2700	Introduction to Dance	3
THR 2990	Special Projects	1-3
THR 3210	Playwriting	3
THR 3800	Production	1-3
THR 4310	Acting for the Camera III	3
THR 4600	Acting III	3
THR 4940	Internship	3
THR 4950	Honors Thesis	3
THR 4990	Special Projects	1-3

Code	Title	Hours
THR 1080	Theatre Technology I	3
THR 1050	Costume Technology	3
THR 1090	Theatre Technology II	3
THR 2000	Theatre Production Practicum Must be taken twice	0
THR 2050	Theatre Shop Practicum Must be taken twice	0
THR 2100	Departmental Ensemble Must be taken every semester to graduate	0
THR 2200	Script Analysis	3
THR 2400	Fundamentals of Design	3
THR 2600	Acting I	3
THR 2660	Acting for the Camera I	3
THR 3150	Theatre History - Ancient to Contemporary - WAC	3
THR 3710	Directing I	3
THR 4150	Theatre Studies	3

Theatre - Theatre Arts Concentration, BA

Students also select one concentration for 15 additional hours:

Code	Title	Hours
Concentration in Theatre Arts		
Required		
THR 3250	Theatre and Stage Management	3
THR 3600	Acting II	3
Select 3 hours from:		*3*
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
Select 6 Hours from any other THR Courses		6

Theatre - Theatre Design & Technology Concentration, BA

Code	Title	Hours
Required Courses		
THR 1050	Costume Technology	3
THR 1080	Theatre Technology I	3
THR 1090	Theatre Technology II	3
THR 2000	Theatre Production Practicum Must be taken twice	0
THR 2050	Theatre Shop Practicum [1]Must be taken twice	0
THR 2100	Departmental Ensemble Must be taken every semester to graduate	0
THR 2200	Script Analysis	3
THR 2400	Fundamentals of Design	3
THR 2600	Acting I	3
THR 2660	Acting for the Camera I	3
THR 3150	Theatre History - Ancient to Contemporary - WAC	3
THR 3710	Directing I	3
THR 4150	Theatre Studies	3
Total Hours		**30**

Students also select one concentration for 15 additional hours:

Code	Title	Hours
Concentration in Theatre Design & Technology		
Required		
THR 3250	Theatre and Stage Management	3
Select 12 hours from the following:		*12*
THR 2420	Stage Makeup	3
THR 2990	Special Projects	1-3
THR 3210	Playwriting	3
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
THR 3800	Production	1-3
THR 4440	Theatre Design	3
THR 4940	Internship	3
THR 4950	Honors Thesis	3
THR 4990	Special Projects	1-3

The BA in Theatre plan of study by concentration:

- Stage and Screen Performance (p. 561)
- Theatre Arts (p. 563)
- Theatre Design & Technology (p. 562)

Theatre-Stage and Screen Performance 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 1080	Theatre Technology I	3
THR 2600	Acting I	3
THR 2200	Script Analysis	3
THR 2000	Theatre Production Practicum	0
THR 2100	Departmental Ensemble	0
ENGL 1110	College Composition I	3
Arts/Humanities Core (History)		3
	Hours	**16**
Second Term		
THR 1050	Costume Technology	3
THR 1090	Theatre Technology II	3
THR 2660	Acting for the Camera I	3
THR 2000	Theatre Production Practicum	0
THR 2100	Departmental Ensemble	0
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3
	Hours	**15**
Third Term		
THR 2400	Fundamentals of Design	3
THR 2050	Theatre Shop Practicum	0
THR 2100	Departmental Ensemble	0
Elementary Foreign Language I		3
ENGL 2720	Reading Drama (Arts/Humanities Core (English Lit))	3
Social Sciences Core/Non-US Diversity		3
Core Elective		3
	Hours	**15**
Fourth Term		
THR 3250	Theatre and Stage Management	3
THR 3150 or THR 4150	Theatre History - Ancient to Contemporary - WAC or Theatre Studies	3
THR 2050	Theatre Shop Practicum	0
THR 2100	Departmental Ensemble	0
Theatre Concentration Course		3
Elementary Foreign Language II		3
Social Sciences Core		3
	Hours	**15**
Fifth Term		
THR 3710	Directing I	3
THR 2100	Departmental Ensemble	0
Theatre Concentration Course		3
Related or Minor course		3
Intermediate Foreign Language I or approved culture course		3
Core Elective/Diversity of US		3
	Hours	**15**
Sixth Term		
THR 2100	Departmental Ensemble	0
Intermediate Foreign Language II or approved culture course		3
THR 4150 or THR 3150	Theatre Studies or Theatre History - Ancient to Contemporary - WAC	3
Theatre Concentration Course		3
Related or minor course		3
Natural Sciences Core		3
	Hours	**15**
Seventh Term		
THR 2100	Departmental Ensemble	0
Related or minor course		6
Theatre Concentration Course		3
Elective		6
	Hours	**15**
Eighth Term		
THR 2100	Departmental Ensemble	0
Related or minor course		6
Elective		8
	Hours	**14**
	Total Hours	**120**

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.

First Term		Hours
AR 1000	First Year Orientation	1
THR 1080	Theatre Technology I	3
THR 2600	Acting I	3
THR 2200	Script Analysis	3
THR 2000	Theatre Production Practicum	0
THR 2100	Departmental Ensemble	0
ENGL 1110	College Composition I	3
Arts/Humanities Core (History)		3
	Hours	**16**

Second Term		
THR 1050	Costume Technology	3
THR 1090	Theatre Technology II	3
THR 2660	Acting for the Camera I	3
THR 2000	Theatre Production Practicum	0
THR 2100	Departmental Ensemble	0
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3
	Hours	**15**
Third Term		
THR 2400	Fundamentals of Design	3
THR 2050	Theatre Shop Practicum	0
THR 2100	Departmental Ensemble	0
Elementary Foreign Language I		3
ENGL 2720	Reading Drama (Arts/Humanities Core (English Lit))	3
Social Sciences Core/Non-US Diversity		3
Core Elective		3
	Hours	**15**
Fourth Term		
THR 3250	Theatre and Stage Management	3
Take Either:		3
THR 3150 or THR 4150	Theatre History - Ancient to Contemporary - WAC or Theatre Studies	
THR 2050	Theatre Shop Practicum	0
THR 2100	Departmental Ensemble	0
Theatre Concentration Course		3
Elementary Foreign Language II		3
Social Sciences Core		3
	Hours	**15**
Fifth Term		
THR 3710	Directing I	3
THR 2100	Departmental Ensemble	0
Theatre Concentration Course		3
Related or Minor course		3
Intermediate Foreign Language I or approved culture course		3
Core Elective/Diversity of US		3
	Hours	**15**
Sixth Term		
THR 2100	Departmental Ensemble	0
Take Either:		3
THR 4150 or THR 3150	Theatre Studies or Theatre History - Ancient to Contemporary - WAC	
Theatre Concentration Course		3
Intermediate Foreign Language II or approved culture course		3
Related or minor course		3
Natural Sciences Core		3
	Hours	**15**
Seventh Term		
THR 2100	Departmental Ensemble	0
Theatre Concentration Course		3
Related or minor course		6
Elective		6
	Hours	**15**
Eighth Term		
THR 2100	Departmental Ensemble	0
Related or minor course		6
Elective		8
	Hours	**14**
	Total Hours	**120**

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.

First Term		**Hours**
AR 1000	First Year Orientation	1
THR 1080	Theatre Technology I	3
THR 2600	Acting I	3
THR 2200	Script Analysis	3
THR 2000	Theatre Production Practicum	0
THR 2100	Departmental Ensemble	0
ENGL 1110	College Composition I	3
Arts/Humanities Core (History)		3
	Hours	**16**
Second Term		
THR 1050	Costume Technology	3
THR 1090	Theatre Technology II	3
THR 2660	Acting for the Camera I	3
THR 2000	Theatre Production Practicum	0
THR 2100	Departmental Ensemble	0
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
MATH 1180	Reasoning With Mathematics	3
	Hours	**15**
Third Term		
THR 2400	Fundamentals of Design	3
THR 2050	Theatre Shop Practicum	0
THR 2100	Departmental Ensemble	0
Elementary Foreign Language I		3
ENGL 2720	Reading Drama (Arts/Humanities Core (English Lit))	3
Social Sciences Core/Non-US Diversity		3

Core Elective		3
	Hours	**15**
Fourth Term		
THR 2050	Theatre Shop Practicum	0
THR 2100	Departmental Ensemble	0
Take Either		3
THR 3150 or THR 4150	Theatre History - Ancient to Contemporary - WAC or Theatre Studies	
THR 3250	Theatre and Stage Management	3
Theatre Concentration Course		3
Elementary Foreign Language II		3
Social Sciences Core		3
	Hours	**15**
Fifth Term		
THR 3710	Directing I	3
THR 2100	Departmental Ensemble	0
Theatre Concentration Course		3
Related or Minor course		3
Intermediate Foreign Language I or approved culture course		3
Core Elective/Diversity of US		3
	Hours	**15**
Sixth Term		
THR 2100	Departmental Ensemble	0
Take Either		3
THR 4150 or THR 3150	Theatre Studies or Theatre History - Ancient to Contemporary - WAC	
Theatre Concentration Course		3
Intermediate Foreign Language II or approved culture course		3
Related or minor course		3
Natural Sciences Core		3
	Hours	**15**
Seventh Term		
THR 2100	Departmental Ensemble	0
Theatre Concentration Course		3
Elective		6
Related or minor course		6
	Hours	**15**
Eighth Term		
THR 2100	Departmental Ensemble	0
Related or minor course		6
Elective		8
	Hours	**14**
	Total Hours	**120**

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

a. Minimum GPA of 3.3 in theatre courses;
b. Minimum cumulative GPA of 3.0; and
c. 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
Required Courses		
FILM 2330	Critical Approaches to Cinema	3
FILM 2350	Cinema History	3
FILM 3410 or FILM 3420		3
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	
Electives		
Select 6 hours of film electives		6
Total Hours		**21**

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
Required Courses		
FILM 2310	Film I	3
FILM 2230	Creative Approaches to Cinema	3
FILM 2320	Digital Cinema Production I - WAC	3
FILM 2330	Critical Approaches to Cinema	3
FILM 2350	Cinema History	3
Cinema Studies		
Select 1 of the following:		3
FILM 4220	Cinema and Popular Culture Studies	
FILM 4330	Critical Approaches to Cinema III	
FILM 3330	Critical Approaches to Cinema II	
FILM 3430	Global Cinema	
FILM 3370	Documentary Film	
FILM 3380	Experimental Film	
FILM 3390	History of Video Art	
WGST 4010	Women's Studies Topics In Film	
Film Video Production		
Select 1 of the following:		3
FILM 4940	Internship	
FILM 4950	Honors Thesis	
FILM 4990	Special Projects	
FILM 3510	Cinematography and Color Grading	
FILM 3350	Screenwriting - WAC	
or ENGL 3065	Screenwriting - WAC	
FILM 3730	Directing for Camera: Styles and Techniques	
FILM 4320	Film/Video Workshop [1]	
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 Screen Acting	
Total Hours		**21**

[1] 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 through course work.
- Students will expand their artistic, personal, social, and cultural awareness through creative inquiry and critical observation through course work.
- Students will create a variety of aesthetic expressions using moving images to develop artistic and professional method through course work.

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:		6
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	
Total Hours		**21**

- 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
Required:		
THR 1050	Costume Technology	3
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
Total Hours		**21**

- 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
Select Two From Below		**6**
THR 1030		
THR 1040		
THR 1050	Costume Technology	
Required		
THR 2000	Theatre Production Practicum	0
THR 2200	Script Analysis	3
THR 2400	Fundamentals of Design	3
THR 3250	Theatre and Stage Management	3
Select Two From Below		**6**
THR 1030	[1]	
THR 1040	[1]	
THR 1050	Costume Technology [1]	
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**

[1] You may use any of these course not already used in the catagory 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

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Ammon Allred, Chair
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Shara Crookston, Program Director

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 students 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 to minor in WGST, because they find a wealth of opportunity after graduation when they bring gender expertise to their chosen fields. 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. Pre-Med students who wish to pursue the WGST minor should speak with their Pre-Health advisor.

WGST and Pre-Law

Students interested in attending law school also find a minor in WGST impactful preparation for a career in private practice or public service. 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. A minor in WGST provides students with the opportunity to gain all of these skills, including abundant opportunities to share them in a variety of public forums. 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 minor in WGST. 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.

Degrees Offered

- Minor in Gender Identities and Sexuality Studies (p. 570)
- Minor in Women's and Gender Studies (p. 571)

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. For both men and women students.
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 3070 Nonbinary: Gender Beyond the Binary
[3 credit hours]
This course examines historical and contemporary understandings of nonbinary gender identities and expressions. It explores how concepts of nonbinary gender have developed across social, cultural, and academic contexts and considers how these ideas intersect with factors such as sexual orientation, biological sex, race, class, and ability.
Term Offered: Spring

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, Fall
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 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 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

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.

Minor in Gender Identities and Sexuality Studies

To complete the minor in Gender Identities and Sexuality 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.

Code	Title	Hours
Required Core		
WGST 2010	Introduction To Gender Studies: Gender, Sex And Difference	3
WGST 4870	Feminisms [1]	3
or WGST 4880	Queer Theory WAC	

WGST 4890	Research and Methods in Women's and Gender Studies	3
Electives		
Select 9 hours of the following:		9
WGST 3100	Globally Queer	
WGST 3200	Issues In Lesbian, Transgender, Bisexual And Gay Communities	
WGST 3070	Nonbinary: Gender Beyond the Binary	
WGST 3550	Feminism And Philosophy: Love, Sex and Marriage	
WGST 3800	Sexual Politics	
WGST 4870	Feminisms [1]	
or WGST 488	Queer Theory WAC	
Total Hours		**18**

[1] Only one of these may count as an elective. The other will be counted as part of the core requirements.

- 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
Core Requirements		
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
Electives		
Select 9 hours of WGST courses [1]		9
Total Hours		**18**

[1] In some cases 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

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Ammon Allred, Chair
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An Chung Cheng, Program Coordinator

CONTACTS

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An Chung Cheng, Undergraduate Advisor, Chinese
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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)
Gaby Semaan, Undergraduate Advisor for Minors, Arabic
The Department of World Languages and Cultures offers instruction
 in the following languages:
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- Arabic
- Chinese
- French
- German
- Japanese
- Spanish

A Minor can be earned in Spanish, 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 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

- Certificate in Intercultural Competency (p. 580)
- Certificate in Issues in Second Language Teaching (p. 581)
- Certificate in Spanish Translation and Interpretation (p. 581)
- Certificate in World Language Proficiency (p. 581)
- Minor in Applied German (p. 581)
- Minor in Arabic (p. 582)
- Minor in General German (p. 582)
- Minor in Japanese (p. 583)
- Minor in Language and Linguistics (p. 584)
- Minor in Spanish (p. 584)
- Minor in World Cultures (p. 585)

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 comtemporary issues realting 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 wheh 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 & 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]
Practice in using and understanding Chinese to develop listening, speaking, reading and writing skills. Pronunciation, grammar, vocabulary and cultural topics. Lab practice required. (Not for major credit)
Prerequisites: (CHIN 1110 with a minimum grade of D- and CHIN 1120 with a minimum grade of D-)
Term Offered: Spring, Fall
Core Arts & Humanities

CHIN 2150 Intermediate Chinese II
[3 credit hours]
This course focuses on developing listening, speaking, reading, and writing skills in Chinese. The course emphasizes pronunciation, grammar, vocabulary, and cultural topics. Lab practice is required. (This course does not count toward a major.)
Prerequisites: (CHIN 1110 with a minimum grade of D- and CHIN 1120 with a minimum grade of D- and CHIN 2140 with a minimum grade of D-)
Term Offered: Spring, Fall
Core Arts & Humanities

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 & 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 & 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 & 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 & 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 & 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.

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 4620 German Classicism
[3 credit hours]
Study of Classical writers of Germany: Goethe, Schiller and their contemporaries.
Term Offered: Spring, Fall

GERM 4710 German Literature Of The 19th Century
[3 credit hours]
Study of selected works by authors from B¿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 4940 Internship in German
[1-12 credit hours]
Educational work experience, using the German language. Maximum of 3 hours may be applied to the German major or minor program.
Prerequisites: GERM 3020 with a minimum grade of D-
Term Offered: Spring, Summer, 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 & 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 & 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 & 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 & 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 & 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 & 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 & 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 & 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 & 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 & 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 3200 Introduction to Hispanic Literature
[3 credit hours]
In this course, students will read some of the most important texts in Hispanic literature. They will study the lives and works of some of the most important writers from Latin America and Spain and will take a critical approach (critical theory) to analyzing the different literary genres (fiction, non-fiction, poetry, drama) and their characteristics in major Hispanic texts. Taught in Spanish.
Term Offered: Spring, 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 4200 Spanish in the US
[3 credit hours]
A thorough study of the phonology, morphology, syntax and semantics of the different varieties of Spanish in the US, with special attention to the Mexican American, Puerto Rican, Dominican, and Cuban dialects. Issues such as bilingualism, contact with English, and ethno-linguistics are addressed within a sociolinguistics approach. Students will have the opportunity to interact with native speakers of these dialects through a service-learning project. All lectures, assignments, and exams are conducted in Spanish.
Term Offered: Spring

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 Spanish major and thereby earn the degree designation of “Departmental Honors”. 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 SPAN 4910 that normally leads to the completion of an Honors thesis.

Certificate in Intercultural Competency

Code	Title	Hours
Required		
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	
Total Hours		**10**

- 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
ENGL 4210	Issues in ESL Writing	3

Certificate in Spanish Translation and Interpretation

This program provides students with the language skills and cultural knowledge to translate and interpret. 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
Required:		
SPAN 4010	Syntax And Stylistics	4
SPAN 4060	Translation & Interpretation In Spanish	3
Electives (Choose one out of the following three courses):		3
SPAN 3170	Business Spanish	
SPAN 3410	Spanish Culture And Civilization	
SPAN 3420	Latin American Civilization	
Total Hours		**10**

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.

World Language Proficiency in Arabic

Code	Title	Hours
ARBC 1120	Elementary Arabic II	4
ARBC 2140	Intermediate Arabic I	3
ARBC 2150	Intermediate Arabic II	3
Total Hours		**10**

World Language Proficiency in Chinese

Code	Title	Hours
CHIN 1120	Elementary Chinese II	4
CHIN 2140	Intermediate Chinese I	3
CHIN 2150	Intermediate Chinese II	3
Total Hours		**10**

World Language Proficiency in French

Code	Title	Hours
FREN 1120	Elementary French II	4
FREN 2140	Intermediate French I	3
FREN 2150	Intermediate French II	3
Total Hours		**10**

World Language Proficiency in German

Code	Title	Hours
GERM 1120	Elementary German II	4
GERM 2140	Intermediate German I	3
GERM 2150	Intermediate German II	3
Total Hours		**10**

World Language Proficiency in Japanese

Code	Title	Hours
JAPN 1120	Elementary Japanese II	4
JAPN 2140	Intermediate Japanese I	3
JAPN 2150	Intermediate Japanese II	3
Total Hours		**10**

World Language Proficiency in Spanish

Code	Title	Hours
SPAN 1120	Elementary Spanish II	4
SPAN 2140	Intermediate Spanish I	3
SPAN 2150	Intermediate Spanish II	3
Total Hours		**10**

Minor in Applied German

Minor in World Languages and Cultures

A minimum of 18-21 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, Japanese, and Spanish; at the 3000 level or higher for German. A minimum of 15 hours is required for the minors in Arabic.

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 Judith Herb College of Arts, Social Sciences and Education 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
Required Courses		
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
GERM 4010	German Syntax And Stylistics I	3
GERM 4020	Advanced Conversation And Composition II - WAC	4
Electives		
Select 3 hours		3
Total Hours		**22**

Minor in Arabic

Minor in World Languages and Cultures

A minimum of 18-21 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, Japanese, and Spanish; at the 3000 level or higher for German. A minimum of 15 hours is required for the minors in Arabic.

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 Judith Herb College of Arts, Social Sciences and Education 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
Required Courses		
ARBC 1110	Elementary Arabic I	4
ARBC 1120	Elementary Arabic II	4
ARBC 2140	Intermediate Arabic I	3
ARBC 2150	Intermediate Arabic II	3
Electives		
Select 1 to 3 hours of from the list of electives		1-3
ARBC 3980	Special Topics in Arabic	
ARBC 1090	Culture of the Arabic-Speaking World	
ARBC 1080	Culture and Commerce in the Arabic-Speaking World	
ARBC 3010	Conversation and Composition I	
ARBC 3020	Conversation and Composition II	
ARBC 3410	Survey of Arabic Civilization I	
ARBC 3420	Survey of Arabic Civilization II	
ARBC 4010	Arabic Syntax and Stylistics I	
ARBC 4020	Arabic Syntax and Stylistics II	
ARBC 4980	Special Topics in Arabic	
Total Hours		**15-17**

- Can identify 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.
- Can demonstrate oral and written communication skills by participating in spontaneous spoken, written, or signed conversations on familiar topics, creating sentences and series of sentences to ask and answer a variety of questions.
- Can demonstrate the ability to communicate information, present, and express their thoughts about familiar topics, using sentences and a series of connected sentences through spoken, written, or signed language.
- Can demonstrate the ability to analyze and make comparisons between products and practice of language to help them understand meaning, context, and conversation.
- Can interact (spoken, written or physical response) at a functional level in some familiar contexts. (E.g. order food from a restaurant menu; place an online order, set up an appointment…etc)

Minor in General German

Minor in World Languages and Cultures

A minimum of 18-21 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, Japanese, and Spanish; at the 3000 level or higher for German. A minimum of 15 hours is required for the minors in Arabic.

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 Judith Herb College of Arts, Social Sciences and Education 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	
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 18-21 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, Japanese, and Spanish; at the 3000 level or higher for German. A minimum of 15 hours is required for the minors in Arabic.

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 Judith Herb College of Arts, Social Sciences and Education 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
Required Courses		
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
Electives		
Select additional two 3-hour+ courses at 3/4000 level		6
Electives		
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
Select one of the following:		3
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	
LAT 2150	Intermediate Latin II	
SPAN 2150	Intermediate Spanish II	
Any 4 courses from the following:		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	
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**

- 1. Students are able to describe the relationship between language, society, cognition and culture.\n
- 2. Students are able to explain key concepts of linguistics.
- 3. Students are able to develop evidence-based arguments in linguistics.
- 4. Students will demonstrate the knowledge and, skills required of linguistics.
- 5. Students will demonstrate the knowledge and skills required of a second language.
- 6. Students are able to solve unique problems by applying linguistic knowledge.
- 7. Students practice critical thinking skills by actively conceptualizing, applying, analyzing, synthesizing, and/or evaluating information.
- 8. Students apply information literacy skills and the ability to use information resources.
- 9. Students will demonstrate professional communication skills both orally and in writing in a second language.
- 10. Students will apply ethical responsibility when conducting research in terms of the rights of human subjects and proper scientific conduct.
- 11. Students will practice collaboration skills by working with peers.
- 12. Students will develop and present both orally and in writing an original research proposal including review of literature, hypothesis statement, and methods.

Minor in Spanish

Minor in World Languages and Cultures

A minimum of 18-21 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, Japanese, and Spanish; at the 3000 level or higher for German. A minimum of 15 hours is required for the minors in Arabic.

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 Judith Herb College of Arts, Social Sciences and Education 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
Required Courses		
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	
Select one of the following:		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	

Select 2 elective courses at the 2/3/4000 level. SPAN 2140 and SPAN 2150 are approved for the minor program.	**6**
Total Hours	**21**

- 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	
Total Hours		**18-19**

- 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

- A.A. in Liberal Arts (p. 591)
- Asian Studies Programs (p. 593)
  - Minor in Asian Studies (p. 593)
- Data Analytics Programs (p. 594)
  - B.A. in Data Analytics (p. 594)
  - Minor in Data Analytics in Social Science (p. 595)
- General Studies (p. 596)
- Health Humanities Minor (p. 599)
- Interdisciplinary Minors (p. 599)
  - Minor in Digital Arts and Visual Communication (p. 599)
  - Minor in Documentary Production and Practice (p. 600)
  - Minor in Sound Production and Design (p. 600)
  - Minor in Visual Effects and Animation (p. 600)
- Latin American Studies Program (p. 601)
  - Minor in Latin American and LatinX Studies (p. 601)
- Law and Social Thought Program (p. 601)
  - B.A. in Law and Social Thought (p. 603)
  - Minor in Law and Social Thought (p. 607)
- Middle East Studies Program (p. 607)
  - Middle East Studies Minor (p. 607)

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 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 & 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 entrepeneurial aspirations and the actual entrepeneurial 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 Enviornment
[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 ecotoursim 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 disability culture and its relationships to the dominant culture.
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 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 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]
In this course students will learn about perspectives on and contemporary issues about disability around the world. We will explore the cultural differences, power imbalances, and politics in the global disability landscape, thinking through disability's relationship to these topics. Geopolitical area of focus may vary based instructor expertise.
*Writing Across the Curriculum
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 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 4700 Eugenics Past and Present
[3 credit hours]
This course provides a historical overview of the ideologies, implementation, and global spread of eugenics, primarily focusing on the United States but also including non-U.S. perspectives. We conclude by raising contemporary questions about eugenics, relating the past to the present.
Term Offered: Spring

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 4930 Disability and Social Services: Housing, Health, and Habilitation
[3 credit hours]
In this course, we use a disability studies approach to explore the social, cultural, and political dimensions of disability social services. Using an array of social scientific research methods and theory, we interrogate issues of stigma, authority and knowledge across an array of fields from direct care to social work to behavioral health services and more.
Term Offered: Spring, 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 (may be taken concurrently) 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

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 concepts of culture and cultural diversity to geographical themes and case studies.
Term Offered: Spring, Fall
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 stratification.
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.
Term Offered: Spring, Fall

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 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- or PSC 1210 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]
In this course students will learn about perspectives on and contemporary issues about disability around the world. We will explore the cultural differences, power imbalances, and politics in the global disability landscape, thinking through disability's relationship to these topics. Geopolitical area of focus may vary based instructor expertise. *Writing Across the Curriculum
Term Offered: Spring, 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 4580 International Law
[3 credit hours]
A course focusing on the foundations of international law and the current use of international law in cases covering a wide range of issues such war, weapons, diplomacy, the environment, economics, and human rights.
Term Offered: Spring, Summer, 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.
Term Offered: Spring, Fall

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, 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 Judith Herb College of Arts, Social Sciences and Education.
- 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
I. General Education Requirements		**25**
A. Oral and Written communication		*3*
ENGL 1110	College Composition I	3
or ENGL 1010	College Composition 1 Co-Requisite	
B. Mathematics		*3*
MATH 1180	Reasoning With Mathematics	3
or MATH 1320	College Algebra	
or MATH 1330	Trigonometry	
or MATH 1340	College Algebra And Trigonometry	
or MATH 1730	Calculus with Applications to Business and Finance	
or MATH 1750	Calculus For The Life Sciences With Applications I	
or MATH 1850	Single Variable Calculus I	
or MATH 2600	Introduction To Statistics	
or MATH 2640	Statistics for Applied Science	
C. Arts and Humanities		*6*
AFST 1100	Introduction To Africana Studies	3
or AFST 2220	History Of Jazz	
or ARTH 1500	Art In History	
or ENGL 1130	College Composition II: Academic Disciplines And Discourse	
or ENGL 2950	Technical Writing	
or ENGL 2960	Professional and Business Writing	
or ENGL 2710	Reading Fiction	
or ENGL 2720	Reading Drama	
or FILM 1310	Introduction To Film	
or HIST 1010	Europe To 1600	
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 1090	East Asia From 1800	
or HIST 1100	Latin American Civilizations	
or HIST 1110	African Civilization	
or HIST 1120	Middle East Civilization	
or HIST 2010	America To 1865	
or HIST 2020	America From 1865	
or HIST 2050	Ancient Greece	
or HIST 2060	Ancient Rome	
or HON 2020	Multicultural Literatures: The North American Experience-Honors-WAC	
or HON 2030	Multicultural Literatures: The Non-European World-Honors-WAC	
or MUS 2250	Musical Diversity In The United States	
or MUS 2210	Introduction To Music	
or MUS 2220	History Of Jazz	
or MUS 2420	Cultures And Music Of Non-Western Styles	
or PHIL 1010	Introduction To Logic	
or PHIL 1020	Critical Thinking	
or PHIL 2200	Introduction To Philosophy	
or PHIL 2400	Contemporary Moral Problems	
or REL 1220	World Religions	
or REL 2000	Introduction To Religion	
or REL 2310	Old Testament/Tanakh	
or REL 2330	New Testament History And Ideas	
or THR 1100	Introduction To Theatre	

D. Social and Behavioral Sciences		*6*
ANTH 1020	Introduction To Anthropology	3
or ANTH 2020	Introduction To Archaeology	
or ANTH 2750	World Archaeology	
or ANTH 2800	Cultural Anthropology	
or ANTH 2900	African American Culture	
or ECON 1010	Introduction To Economic Issues	
or ECON 1150	Principles Of Macroeconomics	
or ECON 1200	Principles Of Microeconomics	
or GEPL 1010	People, Places, and Society	
or GEPL 1100	Environmental Sustainability	
or LST 2640	Race, Class, And Gender	
or PSC 1210	American National Government and Civics	
or PSY 1010	Principles Of Psychology	
or SOC 1010	Introduction To Sociology	
or SOC 1020	Social Problems	
or SOC 2500	Women's Roles: A Global Perspective	
or SOC 2640	Race, Class, And Gender	
or SOC 2900	African American Culture	
or WGST 2400	Women's Roles: A Global Perspective	
or WGST 2640	Race, Class, And Gender	
E. Natural Sciences		*6*
ASTR 1010	Survey Of Astronomy	3
or BIOL 1120	Survey Of Biology	
or BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	
or BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	
or CHEM 1100	Chemistry And Society	
or CHEM 1120	Chemistry For Health Sciences	
or CHEM 1230	General Chemistry I	
or CHEM 1240	General Chemistry II	
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 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 Judith Herb College of Arts, Social Sciences and Education 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 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 2000	Methods Seminar - WAC	
or HIST 2010	America To 1865	
or HIST 2020	America From 1865	
or HIST 2030	Great Americans	
or HIST 2050	Ancient Greece	
or HIST 2060	Ancient Rome	
C. Judith Herb College of Arts, Social Sciences and Education 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 [1]		
III. GENERAL ELECTIVES		**24**
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 Judith Herb College of Arts, Social Sciences and Education 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	

[1] Students who wish to pursue a B.A. degree in the Judith Herb College of Arts, Social Sciences and Education 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 or ENGL 1010	College Composition I or College Composition 1 Co-Requisite	3
General Education Social and Behavioral Sciences		3
General Education Mathematics		3
Arts, Social Sciences and Education Skills elective		3
General Education Natural Science		3
	Hours	**15**
Second Term		
ENGL 1130 or ENGL 2950 or ENGL 2960	College Composition II: Academic Disciplines And Discourse or Technical Writing or Professional and Business Writing	3
Arts, Social Sciences and Education Skills elective		3
General Education Natural Science with lab		3
General Education Social and Behavioral Sciences		3
General Elective [2]		3
	Hours	**15**
Third Term		
History		3
Arts, Social Sciences and Education Exploratory Foundation elective		6
General Elective		6
	Hours	**15**
Fourth Term		
General Elective		15
	Hours	**15**
	Total Hours	**60**

- 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.
- 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.
- Scientific and Quantitative Reasoning and Literacy: UT students must demonstrate the capacity to apply mathematical reasoning and scientific inquiry to diverse problems.

Asian Studies Program

Interdisciplinary Major

An Chung Cheng, Director and Advisor

Degrees Offered

- • Minor in Asian Studies (p. 593)

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.

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
Required courses		
ASST 2100	Introduction to Asian Studies	3
ASST 3010	Issues in Asian Studies	3
Language Requirement		**6**
Arabic, Chinese or Japanese at the 2000 level or above [1]		
Major Electives: choose two courses from below		**6**
ARTH 2100	Asian Art	
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.		
Total Hours		**18**

[1] 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 Judith Herb College of Arts, Social Sciences and Education 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. 594)
- Minor in Data Analytics in Social Science (p. 595)

B.A. in Data Analytics

Program Director and 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 Judith Herb College of Arts, Social Sciences and Education 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		
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
	Hours	**17**
Second Term		
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
	Hours	**16**
Third Term		
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
	Hours	**16**
Fourth Term		
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
	Hours	**15**
Fifth Term		
GEPL 4110	Geographic Information Systems	3
ECON 3810 or ECON 3300	Applied Econometrics 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
	Hours	**15**
Sixth Term		
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
	Hours	**15**
Seventh Term		
Related Concentration Elective or minor course		6
Electives		6
	Hours	**12**
Eighth Term		
DANN 4000	Proseminar in Data Analytics II	2
Natural Sciences Core & Lab		4
Related Concentration Elective or minor course		3
Electives		5
	Hours	**14**
	Total Hours	**120**

- 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
Total Hours		**18-19**

- 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.

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 specialization: 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 an minimum GPA average of 2.0 in a GPA calculation of the core concentration area.

Code	Title	Hours
Africana Studies Specialization		
A specialization 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.		
Required		**12**
AFST 1100	Introduction To Africana Studies	3
AFST 1200	Introduction To The African Experience	3
or AFST 2100	Foundations Of Black Intellectual History	
AFST 3600	Entrepreneurship and the Black Community	3
AFST 4900	Senior Seminar	3
Electives: Select from the categories below		*21*

Africana Studies Electives:

AFST 2100	Foundations Of Black Intellectual History	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 Marginalized Communities
ENGL 3770	World Literature And Cultures
ENGL 4650	African American Writing 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 Subsaharan Africa
GEPL 2030	Cultural Geography
GEPL 3220	Geography Of Africa
PSC 2660	African Politics
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
WGST 3600	Feminist Health Humanities

Code	Title	Hours
Asian Studies Specialization		
This specialization 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	Selected Topics in Asian Studies
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 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	Asian Art
ARTH 3250	Topics In Asian Art
HIST 2700	Japan And World War II
HIST 2710	Postwar Japan
HIST 2730	The Chinese Revolution
HIST 4720	Modern Chinese History
HIST 4740	Modern Japanese History
PHIL 3500	Eastern Thought
REL 3500	Eastern Thought
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
Disability Studies Specialization		
The specialization 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	
DST 4940	Internship In Disability Studies	3
DST 4990		
Disability Studies Electives		*21*
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 3980	Special Topics in Disability Studies	
DST 4000	Global Issues in Disability Studies	
DST 4400	Gender and Disability	
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
Specialization 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 an 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
Women and Gender Studies Specialization		
Specialization 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 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	Independent Study In Social Work	
Interdisciplinary Electives		
ARTH 3750	Art and Disease - WAC	
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

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 (History)		3
Elementary Foreign Language I		4
	Hours	**14**
Second Term		
ENGL 1130	College Composition II: Academic Disciplines And Discourse	3
Elementary Foreign Language II		4
Natural Sciences Core		3
Social Sciences Core		3
Arts/Humanities Core (Fine Arts)		3
	Hours	**16**

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
	Hours	**16**
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
	Hours	**15**

Third Year

First Term		
General Studies Core Area		6
Elective - Writing Across Curriculum		3
General Studies Cognate		6
	Hours	**15**
Second Term		
General Studies Core Area		6
General Studies Cognate		9
	Hours	**15**

Fourth Year

First Term		
General Studies Core Area		3
General Studies Cognate		9

Elective - Writing Across Curriculum	3
Hours	**15**
Second Term	
General Studies Cognate	8
Elective	6
Hours	**14**
Total Hours	**120**

- PLO 1. write clearly and effectively for a variety of audiences and purposes
- PLO 2. use quantitative reasoning to analyze problems and identify solutions
- PLO 3. locate, interpret, determine the credibility of, and use information effectively, ethically, and legally
- PLO 4. analyze and evaluate alternative points of view
- 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 360	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 3060	U.S. Disability History	
DST 3980	Special Topics in Disability Studies	
DST 4400	Gender and Disability	
DST 4980	Special Topics in Disability Studies [1]	
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 [2]	
WGST 2980	Special Topics In Women's And Gender Studies [1]	
WGST 4160	Health And Gender	
Total Hours		**18**

1. Special topics should pertain to issues in Health Humanities and must be approved by advisor for use in the minor.
2. Only sections of SPAN 2150 identified as for Health Professions are eligible for use in minor.
3. 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. 599)
- Minor in Documentary Production and Practice (p. 600)
- Minor in Sound Production and Design (p. 600)
- Minor in Visual Effects and Animation (p. 600)

Minor in Digital Arts and Visual Communication

This minor offers a broad range of communication design and creative problem-solving skills that 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
Required Courses		
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 [1]	
ART 2020	Graphic Design: Web [1]	
ART 2030	Introduction to Photography (Introduction/digital) [1]	
COMM 2150	Digital Design for Media Communication	
COMM 2300	Photojournalism	
FILM 2320	Digital Cinema Production I - WAC [1]	
ARTH 2980	Special Topics	
ART 3000	Photography: Topics [1]	
ART 3000	Photography: Topics (Intermediate) [1]	
ART 3010	[1]	
COMM 3340	Visual Communication	
COMM 3350		
FILM 3560	Methods for the Professional Editor [1]	
ART 4020	Time, Motion, Space: Topics [1]	
COMM 4330	Integrated Media [1]	
COMM 4340	Advanced Visual Communication [1]	
Total Hours		**18**

[1] 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
Required Courses		
FILM 2310	Film I [1]	3
or COMM 2160	Single Camera Production	
ART 2030	Introduction to Photography [1]	3
or COMM 2300	Photojournalism	
Select remaining courses to total 18 credits from: [2]		12
ART 2030	Introduction to Photography [1]	
FILM 2310	Film I [1]	
COMM 2160	Single Camera Production	
COMM 2300	Photojournalism	
COMM 3180	[1]	
FILM 3370	Documentary Film [1]	
FILM 3510	Cinematography and Color Grading [1]	
FILM 3820	Documentary Field Production [1]	
ART 4000	Advanced Photography: Topics [1, 3]	
FILM 4210	[1]	
COMM 4220	Advanced Television Production [1]	
COMM 4250	[1]	
Total Hours		**18**

[1] This course has at least one pre-requisite. Contact the instructor to determine if you have acceptable alternative experience for admission into the course.

[2] Courses should be chosen primarily from outside your major. At least 9 credits must be at the 3/4000 level.

[3] *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
Required Courses		
COMM 2210	Introduction to Audio Production	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		
ART 1070	Foundations of Digital Media	
COMM 3210	Advanced Audio Production	
MUS 3260	Advanced Electronic Music	
MUS 3270	Advanced Recording Techniques	
Total Hours		**18**

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
Required Courses		
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 [1]	
FILM 2310	Film I [1]	
FILM 2320	Digital Cinema Production I - WAC [1]	

ART 3010	[1]	
COMM 3350		
FILM 3530	Animation and Optical Printing [1]	
ART 4020	Time, Motion, Space: Topics [1]	
Total Hours		**18**

[1] 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. 601)

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
Total Hours		**18**

- 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. 603)
- Minor in Law and Social Thought (p. 607)

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 concepts of culture and cultural diversity to geographical themes and case studies.
Term Offered: Spring, Fall
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 stratification.
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.
Term Offered: Spring, Fall

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 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- or PSC 1210 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]
In this course students will learn about perspectives on and contemporary issues about disability around the world. We will explore the cultural differences, power imbalances, and politics in the global disability landscape, thinking through disability's relationship to these topics. Geopolitical area of focus may vary based instructor expertise. *Writing Across the Curriculum
Term Offered: Spring, 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 4580 International Law
[3 credit hours]
A course focusing on the foundations of international law and the current use of international law in cases covering a wide range of issues such war, weapons, diplomacy, the environment, economics, and human rights.
Term Offered: Spring, Summer, 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.
Term Offered: Spring, Fall

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, 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. 604)**
- **Law and Social Thought - Disability Studies Concentration (p. 604)**
- **Law and Social Thought - Women's and Gender Studies Concentration (p. 604)**

Law and Social Thought

Code	Title	Hours
Requirements		
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
LST Elective Courses/Cross-Listed Courses		
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.		
Total Hours		**32-35**

[1] Students are required to take both Proseminar I & Proseminar II.

Disability Studies Concentration

Code	Title	Hours
Requirements		
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
Disability Studies Concentration		
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.		
Total Hours		**32-35**

[1] Students are required to take both Proseminar I & Proseminar II.

Women's and Gender Studies Concentration

Code	Title	Hours
Requirements		
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
Concentration in Women and Gender Studies		
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.		
Total Hours		**32-35**

[1] Students are required to take both Proseminar I & Proseminar II.

- **Law and Social Thought**
- **Law and Social Thought - Disability Studies Concentration**
- **Law and Social Thought - Women's and Gender Studies Concentration (p. 606)**

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
	Hours	**17**
Second Term		
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
	Hours	**15**
Third Term		
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
	Hours	**15**
Fourth Term		
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
	Hours	**15**

Fifth Term		
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
	Hours	**15**
Sixth Term		
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
	Hours	**15**
Seventh Term		
LST 3510	Constitutional Law I	3
LST 4900	Seminar In Law And Social Thought	3
SOCW 3070	Child Welfare I	3
COMM 3180		3
	Hours	**12**
Eighth Term		
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
	Hours	**16**
	Total Hours	**120**

Disability 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
	Hours	**17**
Second Term		
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
	Hours	**15**
Third Term		
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
	Hours	**15**
Fourth Term		
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
	Hours	**15**
Fifth Term		
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
	Hours	**15**
Sixth Term		
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
	Hours	**15**
Seventh Term		
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		3
	Hours	**12**
Eighth Term		
LST 3500 or LST 2500	Proseminar II or Proseminar I	1
LST 4990	Capstone in Law and Social Thought	3
DST 4500		3
ECON 3070		3
BANS 3060	Managerial Economics	3

WGST 3010	Global Issues In Women's Studies	3
	Hours	**16**
	Total Hours	**120**

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
	Hours	**17**
Second Term		
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
	Hours	**15**
Third Term		
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
	Hours	**15**
Fourth Term		
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
	Hours	**15**
Fifth Term		
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
	Hours	**15**
Sixth Term		
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
	Hours	**15**
Seventh Term		
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		3
	Hours	**12**
Eighth Term		
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
	Hours	**16**
	Total Hours	**120**

- 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
Core Requirements		
LST 2010	Law And Social Thought	3
Electives		
Select five electives cross-listed or taught for the Law and Social Thought program: [1]		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		
Total Hours		**18**

[1] 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 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 Minor (p. 607)

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

Middle East Studies Minor

The minor in Middle East Studies consists of 18 credits.

Option 1:

Code	Title	Hours
Required:		
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
Total Hours		**18**

Option 2:

Code	Title	Hours
Select two:		
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
Select 6 additional credits from:		
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

Daniel McInnis, 2018, Associate Professor, B.F.A., Ithaca College, M.F.A., Savannah College of Art and Design

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 CriminAL Justice

Edward Biederstedt, 2022, Associate Lecturer, B.S., Bowling Green State University

Andrew Mick Dier, 2012, Associate Lecturer, A.A.B., B.A., M.Ed., The University of Toledo

Wendi Goodlin-Fahncke, 2010, Associate Professor, B.A., University of Pittsburgh; M.A., Ph.D., Bowling Green State University

David Lilley, 2014, Associate Professor, B.S., Grand Valley State University; M.S., Ph.D., Michigan State University

John H. Shuba, 2010, Senior Lecturer, B.Ed., M.P.A., J.D., The University of Toledo

Megan Stewart, 2015, Associate Professor, B.A., Miami University; M.S., Ph.D., University of Cincinnati

Kasey Tucker-Gail, 2004, Professor, B.S., Lake Superior State University; M.S., Ferris State University; Ph.D. Western Michigan University

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, Professor, BA, Concordia College; MA, Eastern Illinois University; PhD, University of South Florida

Steven Jackson, 2025, Assistant Lecturer, BA, Tougaloo College, Tougaloo, Mississippi

Xianlin Jin, 2021, Associate 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

Matthew Lindia, 2026, Assistant Professor, BA, Wheaton College, Wheaton, IL, MA, Georgetown University, Washington, DC, PhD, Duquesne University, Pittsburgh, PA

Tisha Mays, 2021, Associate 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

Jamie Ward, 2024 Associate Professor, B.A., University of Michigan – Dearborn; M.A., Eastern Michigan University; Ph.D., Bowling Green State University

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, Chair, 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

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

Department of Educational studies

Svetlana Beltyukova, 2005, Professor and Chair, Ph.D., Kiev Linguistic University; M.E., Ph.D., The University of Toledo

Debra Brace, 2010, Associate professor, B.S., B.A., M.S., Ph.D., Indiana University

Victoria Dagostino-Kalniz, 2010, Assistant professor, BIS, Lourdes College; M.A., Ph.D., The University of Toledo

Christine M. Fox, 1994, Professor, B.A., Miami University; M.A., Cleveland State University; Ph.D., Kent State University

Lynne Hamer, 2002, Professor, B.A., Hamline University; M.A., Ph.D., Indiana University

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Department of English Language and Literature

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Department of Geography and Planning

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Department of History

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Department of Music

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Department of Women's and Gender Studies

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Department of World Languages and Cultures

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University College

UNDERGRADUATE Catalog 2026-2027

University College, Rocket Hall, Room 1300
419.530.6235
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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;
- 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

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For additional information on University College staff, go to the University College website at www.utoledo.edu/UC/ (http://www.utoledo.edu/uc/).

Degrees Offered

Department of Interdisciplinary and Special Programs (p. 617)

- Associate of Arts in General Studies (A.A.) (p. 619)
- Individualized Studies (B.A. or B.S.) (p. 619)
- Liberal Studies (B.A.) (p. 622)

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 to the Manager for Academic Success Programs at AcademicSuccess@utoledo.edu. Consult the Manager for Academic Success Programs 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 Academic Success 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 UToledo 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
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
3364-71-04.01 Academic dishonesty procedure
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
3364-71-07.01 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
3364-71-28 The University of Toledo SROTC housing financial offset incentive policy procedure
3364-71-29 Guidelines on authorship policy
3364-71-30 Religious accommodations
3364-71-30.01 Procedure - religious accommodations
3364-71-31 Course scheduling
3364-71-31.01 Course scheduling procedure
3364-71-32 Transfer credit
3364-71-32.01 Procedure - transfer credit
3364-71-33 Intellectual diversity and controversial beliefs
3364-72-54 Assessment of student learning

Student Services

Academic Advising

At The University of Toledo, every student is matched with a professional academic advisor who supports you throughout your college journey. Your advisor helps you navigate the university, set academic and career goals, choose the right major, and stay on track for graduation.

Advisors offer personalized guidance and connect you with campus resources to support your success. Meet with your advisor at least once each semester—not just to register for classes, but to review your progress and adjust goals. Always consult your advisor before changing your schedule, as dropping or withdrawing from a course can have unintended consequences.

You can find your assigned academic advisor in your **Student Profile** through your myUT portal .

Learn more at utoledo.edu/offices/advising (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.utoledo.edu%2Foffices%2Fadvising%2F&data=05%7C02%7CMatthew.Reising%40UToledo.edu%7C5b3cc3353977491c90b608dd87606c2d%7C1d6b1707baa94a3da8f8deabfb3d467b%7C0%7C0%7C638815570405494858%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXa%3D%3D%7C0%7C%7C%7C&sdata=hM8bQyH5W%2BypKN%2BDOZSoXNJaYykw3oouJqCKpLS4GoM%3D&reserved=0).

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 then register to audit courses with the Program 60 advisor. 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.

Earning Alternative College Credit

Advanced Placement (AP)

High school students who enroll in college-level courses and who demonstrate superior achievement in the appropriate Advanced Placement examinations offered by the College Entrance Examination Board may submit results of their examinations to the Office of Undergraduate Admissions as part of their application for admission. These examinations are offered in May and the candidate may, if desired, choose to take them by consulting with the high school college counselor or principal.

The University of Toledo adheres the Advanced Placement Policy (https://transfercredit.ohio.gov/students/student-programs/advanced-placement/) established by the Ohio Department of Higher Education. This policy directs Ohio public colleges and universities to grant credit to enrolled students who received a score of 3 or higher on College Board Advanced Placement (AP) examinations. This credit is matched to an appropriate general education course offered at the institution when possible and fulfill any degree requirements that course would fulfill. In instances where an institution does not have an appropriate course and/or sequence match to an AP examination, a recommended range of Ohio Transfer Module (OTM) area credit or general elective credit hours has been provided. This credit should be applied where such credit/course options exist within the Associate or Baccalaureate degree requirements. Additional information on Advanced Placement including a list of subject exams, scores and course equivalencies is available on the Registrar's website. (https://www.utoledo.edu/offices/registrar/student_records/advan_credits.html)

College Level Examination Program (CLEP)

The University of Toledo adheres to the guidelines on CLEP testing (https://transfercredit.ohio.gov/students/student-programs/clep/) as part of the transfer and articulation policies established by the Ohio Department of Higher Education. A student may earn college credit by taking the College Level Examination Program (CLEP) tests if college credit has not been earned in the area in which credit is sought and the student is not currently enrolled in a course in that area. Students should consult the college in which they are enrolled to determine the specific credit limitations. It is recommended that CLEP exams be taken prior to enrolling in classes at The University of Toledo, but students may, with an advisor's permission, take CLEP exams within their program of study. CLEP testing is not available on campus at the University but information on taking the CLEP tests is available through the UToledo Testing Services (https://www.utoledo.edu/centers/testingcenter/). Additional information on CLEP including a list test names and scores is available on the Registrar's website (https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.utoledo.edu%2Foffices%2Fregistrar%2Fstudent_records%2Fclep-exams.html&data=05%7C02%7CCathy.Zimmer%40utoledo.edu%7Ca6f0265407304ec976b108de9b2adae5%7C1d6b1707baa94a3da8f8deabfb3d46%7C0%7C0%7C639118805522540609%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXa%3D%3D%7C0%7C%7C%7C&sdata=bzNsdQMK8a67N2J6dZ6IZfXKJX1S8%2BPVAi61CW8rFu0%3D&reserve

Duplicate Credit in CLEP and AP

Within existing college and university limitations, when a student presents CLEP and Advanced Placement scores in the same area, credit will be given for the CLEP or AP, whichever is the higher number of credit hours. In no case will CLEP and AP credits be added or combined. The individual department may decide which course credit is to be given if alternate course credit is possible.

International Baccalaureate (IB)

The University of Toledo will award credit for a minimum score of 4 on the higher level examination of the International Baccalaureate (IB). Additional IB test score information is available through the Registrar (https://www.utoledo.edu/offices/registrar/student_records/internationalbaccalaureate.html).

An incoming freshmen student who wants his/her IB examination test scores equated for course credit at the University is responsible for having his/her official IB scores submitted directly to the University.

Upon receipt, the student's IB test scores will be evaluated in accord with the University's transfer policies and transfer credit evaluation procedures for the catalog year in which the student matriculates. The student's test scores and choice of major determines the application of the credits awarded from the IB examinations.

The UToledo course equivalency for each course within each subject group will be established by faculty within the department most closely aligned with the subject content and learning outcomes of the IB diploma course(s).

A student who earns credit in a course that is equivalent to an IB examination will not be given credit for the IB examination credit. A student may not apply for IB credit after they matriculate. IB credit will not be assigned to the record retroactively.

The provost and vice president for Academic Affairs (or designee) will review the awarding of credit through the International Baccalaureate Diploma program annually each May in accordance with the state's policies on transfer and articulation.

Prior Learning Assessment (PLA)

Prior Learning Assessment (PLA) credit is based on the concept that college-level learning can be achieved outside of the classroom. PLA credit is coordinated through the University's prior learning assessment program which adheres to and maintains best practices in assessing prior learning as recommended by the Higher Learning Commission, the Council for Adult and Experiential Learning, and the Ohio Department of Higher Education.

The prior learning liaison working with a student's academic advisor assists in determining the area(s) in which prior learning assessment is likely to be applicable. Guidance along with referrals to college departments are coordinated through the Registrar's Office, PLA@utoledo.edu.

Department of Interdisciplinary and Special Programs

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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. 619)
- Individualized Studies (B.A. or B.S.) (p. 619)
- Liberal Studies (p. 622)

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 3000 Introduction to Professional Studies
[3 credit hours]
This course builds advanced research and information literacy skills for professional contexts. Students learn to identify, evaluate, and synthesize career-relevant information, understand how information is created and used within professional communities, and apply research to informed decision-making. Ethical use of information technologies, including artificial intelligence, is emphasized.
Term Offered: Spring, Fall

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 is designed to assist students with their career development and readiness post-graduation. The course will utilize the National Association of Colleges and Employers (NACE) career readiness competencies as a guide to bring awareness to students' strengths and weaknesses regarding professional growth. The competencies are: Career & Self-Development, Communication, Critical Thinking, Equity & Inclusion, Leadership, Professionalism, Teamwork, and Technology. The course will result in students developing a personal brand, so that they are able to market themselves along with their degree post-graduation.
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 idealogical 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 courses 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 & 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.

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 [1]		24
Total Hours		**61**

[1] 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.

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		
PSC		
HIST		
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 Individualized 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.

Combined bachelor's to master's BA/BS in Individualized Studies to Master of Interdisciplinary Studies:

Undergraduate students accepted to the BA/BS in Individualized Studies to Master of Interdisciplinary Studies option will be admitted to the Interdisciplinary Studies, MA program and allowed to complete up to three graduate level classes (nine credit hours total) 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 may be taken at The University of Toledo only after the student is accepted in the program, 2) MLS 6000, MLS 6100 and one of the courses from the list below 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.

DST 6000 Disability Studies in Theory and Practice
DST 6200 Representations of Disability and the Rise of Disability Culture
DST 6400 Disability History and Rights
MGMT 6100 Leading Through Ethical Decision-Making
MGMT 6150 Leading and Developing Yourself
MGMT 6190 Leading change and Organizational Improvement
MKTG 6230 Digital Marketing
PUBH 6010 Public Health Epidemiology
PUBH 6020 Management and Leadership in Public Health
PUBH 6080 Social Determinants of Health
PSC 5480 Introduction to Nonprofits
PSC 5430 Human Resources Management in Public and Nonprofit Organizations
PSC 5380 Fundraising

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		
PSC		
HIST		
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 Individualized 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:

1. Twenty-five percent (25%) of course work applying toward degree must be completed in one of the following areas:
   a. Natural Sciences,
   b. Mathematics,
   c. Computer Sciences and/or
   d. Health Education.
2. 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.

Combined bachelor's to master's BA/BS in Individualized Studies to Master of Interdisciplinary Studies:

Undergraduate students accepted to the BA/BS in Individualized Studies to Master of Interdisciplinary Studies option will be admitted to the Interdisciplinary Studies, MA program and allowed to complete up to three graduate level classes (nine credit hours total) 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 may be taken at The University of Toledo only after the student is accepted in the program, 2) MLS 6000, MLS 6100 and one of the courses from the list below 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.

DST 6000 Disability Studies in Theory and Practice
DST 6200 Representations of Disability and the Rise of Disability Culture
DST 6400 Disability History and Rights
MGMT 6100 Leading Through Ethical Decision-Making
MGMT 6150 Leading and Developing Yourself
MGMT 6190 Leading change and Organizational Improvement
MKTG 6230 Digital Marketing
PUBH 6010 Public Health Epidemiology
PUBH 6020 Management and Leadership in Public Health
PUBH 6080 Social Determinants of Health
PSC 5480 Introduction to Nonprofits

PSC 5430 Human Resources Management in Public and Nonprofit Organizations
PSC 5380 Fundraising

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		
PSC		
HIST		
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		
PSC		
HIST		
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

- PLO1: Develop a personalized career plan by identifying strengths, interests, and values, setting actionable goals with timelines, researching relevant educational and development opportunities, and creating a networking strategy to expand professional connections.
- PLO2: Demonstrate effective communication skills in professional settings by presenting ideas persuasively, writing clearly and professionally, and building positive relationships through interpersonal interactions.
- PLO3: Apply creative, critical, and ethical thinking to generate innovative solutions, assess information and arguments, reflect on personal beliefs and decision-making, and make responsible, integrity-driven decisions.
- PLO4: Evaluate personal biases, use inclusive language, identify and address barriers to inclusion, and assess personal growth in promoting equity and inclusion to develop an awareness and understanding of diverse cultures and identities.
- PLO5: Develop self-awareness of strengths, values, and leadership style, by practicing providing constructive feedback to your peers, and demonstrating ethical leadership skills.
- PLO6: Demonstrate professionalism through personal presentation, effective time management, and adaptability in responding to changing priorities and environments.
- PLO7: Evaluate team roles, leverage individual strengths, manage conflicts constructively, and foster a shared understanding of common goals to enhance team performance and collaboration.
- PLO8: Create a multimedia presentation that examines the usefulness and challenges of current technology.
- PLO9: Develop a strong personal brand to clearly convey career and academic achievements to advance professional growth.

Liberal Studies

Students 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 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 have a high school grade point average of 2.0 or a 19 on the ACT.

Transfer students must 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 UToledo 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.

Code	Title	Hours
AL 3500	Fundamentals of Interdisciplinary Research	3
AL 4950	Senior Capstone	4
Select two classes in each seminar topic.		24
ALS 3040	Topical Seminar: Social Sciences	
ALS 3050	Topical Seminar: Humanities	
ALS 3060	Topical Seminar: Natural Sciences	
CMPT 1100	Microsoft Office Applications	3
or BUAD 1020	Micro-Computer Applications In Business	

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 (https://www.utoledo.edu/offices/registrar/student_records/clep-exams.html) (https://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 their career interests.

Senior Capstone

AL 3500, Fundamentals of Interdisciplinary Research, focuses on developing students' research skills.

AL 4950, Senior Capstone, is the final requirement of the LS program. It is a 4 credit hour course that prepares graduating seniors to confidently transition their college experience into their professional career. The course culminates in a comprehensive career portfolio for all students regardless of where they are in their career journey.

Liberal Studies Plan of Study

Code	Title	Hours
UToledo Core		
One Math course or CLEP Test		3
English Comp I		3
English Comp II		3
University College Core		
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	
Liberal Studies Core		
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 [1]		
Select 26 – 29 hours of electives in consultation with adviser		26-29
Total Hours		**120**

[1] 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.

- PLO1: Analyze interdisciplinary topics in the humanities, social sciences, and natural sciences by providing evidence-based arguments and synthesizing diverse perspectives.
- PLO2: Evaluate the reliability of sources, apply research methods, and present research findings that demonstrate mastery of a selected subject area.
- PLO3: Develop a personalized career plan by identifying strengths, interests, and values, setting actionable goals with timelines, researching relevant educational and development opportunities, and creating a networking strategy to expand professional connections.
- PLO4: Demonstrate effective communication skills in professional settings by presenting ideas persuasively, writing clearly and professionally, and building positive relationships through interpersonal interactions.
- PLO5: Apply creative, critical, and ethical thinking to generate innovative solutions, assess information and arguments, reflect on personal beliefs and decision-making, and make responsible, integrity-driven decisions.
- PLO6: Evaluate personal biases, use inclusive language, identify and address barriers to inclusion, and assess personal growth in promoting equity and inclusion to develop an awareness and understanding of diverse cultures and identities.
- PLO7: Develop self-awareness of strengths, values, and leadership style, by practicing providing constructive feedback to your peers, and demonstrating ethical leadership skills.
- PLO8: Demonstrate professionalism through personal presentation, effective time management, and adaptability in responding to changing priorities and environments.
- PLO9: Evaluate team roles, leverage individual strengths, manage conflicts constructively, and foster a shared understanding of common goals to enhance team performance and collaboration.
- PLO10: Create a multimedia presentation that examines the usefulness and challenges of current technology.
- PLO11: Develop a strong personal brand to clearly convey career and academic achievements to advance professional growth.

Department of Exploratory Studies

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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 who 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**

[1] 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 UToledo Rockets email.

College Credit Plus Student Responsibilities

- Attend all classes
- Complete all required coursework
- Meet regularly with high school counselor and UToledo College Credit Plus advisor 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 (https://www.utoledo.edu/policies/academic/undergraduate/) as UToledo students in University College (https://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 (p. 631)
- Constitutional Studies Minor (p. 631)
- Science, Technology, and Society, Minor (p. 632)

CLT 2000 The American Constitutional Tradition
[3 credit hours]
This course will examine the American constitutional order, from its philosophical origins in the ancient and modern Western tradition to the contributions of 20th century political theorists. We will seek to understand how the American Constitution was created and how it has been interpreted and challenged through various constitutional crises. To this end, we will study the documents and speeches that have shaped America from the Founding era to the present day, including the Declaration of Independence, the U.S. Constitution, The Federalist, and the writings of leaders such as Abraham Lincoln, Franklin D. Roosevelt, and Martin Luther King, Jr.
Term Offered: Spring, Fall
Core Arts & Humanities

CLT 2500 Landmark Cases in American Constitutionalism
[3 credit hours]
This course will examine landmark Supreme Court cases–cases that have significantly shaped the political, legal, and cultural landscape in America. The cases will range from the Founding era to today, and they will cover topics such as separation of powers, racial equality, First Amendment freedom of speech and religion, abortion, and marriage. In examining these cases, we will consider the proper role of the judiciary in America and whether it is indeed the "least dangerous branch," as Alexander Hamilton envisioned it to be nearly 250 years ago. In addition to studying Supreme Court cases, we will also examine the writings of judges and statesmen concerning the role of the judiciary in our constitutional republic.
Prerequisites: CLT 2000 (may be taken concurrently) with a minimum grade of D-
Term Offered: Spring, Summer, Fall

CLT 2750 Complex Leadership Challenges
[1 credit hour]
This seminar connects students with leaders in the world of business, government, and technology. The seminar will meet once per month to meet with a visiting speaker. Brief writing assignments will be due before and after each seminar. Seminar requirements will vary and will require students to communicate about and generate innovative approaches to the most current complex issues.
Term Offered: Spring

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 3020 Liberalism and Conservatism in America
[3 credit hours]
This course examines the development and ongoing dialogue between liberal and conservative political thought in America. Students will explore foundational texts from both traditions, analyzing how they have shaped American political discourse from the founding era to the present. The course places special emphasis on key debates about individual liberty, tradition, progress, markets, and social justice. Through careful reading of paired texts from liberal and conservative thinkers, students will develop a deeper understanding of America's major political-philosophical traditions.
Term Offered: Spring, Fall

CLT 3030 Model U.S. Senate
[3 credit hours]
Through the recreation of historical Senate debates, students will learn the nature of statesmanship and the distinct function of the Senate in our republic. We will begin by studying the creation of the U.S. Constitution, focusing on the separation of powers and how the American Founders envisioned the role of Congress within it. We will then study the development of Congress throughout U.S. history. This study will include the simulation of three historic Senate debates, in which students will strategize and debate legislation and other congressional actions. Topics may include foreign policy, treaty ratifications, constitutional amendments, and presidential impeachments.
Term Offered: Spring, Fall

CLT 3040 Constitutional Democracy and Democratic Citizenship
[3 credit hours]
This course examines the theoretical foundations and practical challenges of constitutional democracy, combining insights from political economy and moral philosophy. Students will explore how constitutional systems manage competing interests, how democratic institutions function, and what ethical obligations citizens have in a democracy. Topics include constitutional design, public choice theory, voting behavior, religious freedom, and civic duties. The course emphasizes both formal analysis of democratic institutions and normative questions about democratic citizenship.
Term Offered: Spring, Fall

CLT 3050 Model US Senate Extension
[1 credit hour]
This 1-credit course allows students who already successfully completed the 3-credit Model U.S. Senate course to continue participating in the recreation of historical Senate debates. Through these debate simulations, students will continue to learn the nature of statesmanship and the distinct function of the Senate in our republic. Students will join those enrolled in the 3-credit course to strategize and debate legislation and other congressional actions. Topics may include foreign policy, treaty ratifications, constitutional amendments, and presidential impeachments.
Prerequisites: CLT 3030 with a minimum grade of D-
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 3750 The Empire of Modern Science
[3 credit hours]
This course examines the ascendance of science as leader of the modern world. Students examine the science's leadership as a proposition: Are science and technology sufficient to guide human life and society? Readings are drawn from primary sources in the history and philosophy of science from ancient to modern times. Students will wrestle with difficult questions and will engage at length critiques of science and Western liberalism. The course also examines the ambitions and limits of the modern scientific enterprise and investigates whether scientific education adequately equips young scientists to serve as leaders and stewards of humanity's future.
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

CLT 4900 Constitutional Studies Senior Seminar
[3 credit hours]
This capstone course in Constitutional Studies is designed to help students integrate the knowledge and skills they have gained throughout the major. Through the study of selected authors, texts, or themes chosen by the instructor, students will deepen their understanding of constitutional principles, political thought, and civic life. The course culminates in the research and writing of a senior thesis, in which students articulate and defend a substantive argument on a topic of their choosing in consultation with the instructor. Each student will present the completed thesis in a public forum.
Prerequisites: CLT 2000 (may be taken concurrently) with a minimum grade of D- and CLT 2500 (may be taken concurrently) with a minimum grade of D- and CLT 3000 (may be taken concurrently) with a minimum grade of D- and CLT 3010 (may be taken concurrently) with a minimum grade of D-
Term Offered: Spring, Fall

Civic Thought and Leadership Certificate

Code	Title	Hours
CLT 3000	The Art of Statesmanship and the Civic Life [1]	3
or CLT 3020	Liberalism and Conservatism in America	
CLT 3010	The Art of Rhetoric and the Civic Life [1]	3
or CLT 3030	Model U.S. Senate	
Select two of the following		6
CLT 3020	Liberalism and Conservatism in America	
CLT 3030	Model U.S. Senate	
CLT 3500	Civic Discourse	
CLT 3510	Competing Theories of Justice	
ECON 4410	American Economic History	
CLT 3990	Special Topics in Civic Thought	
Total Hours		**12**

[1] Students may take all four courses listed under the required section to fulfill the certificate's requirements. These include CLT 3000, 3010, 3020, and 3030.

- 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.

Constitutional Studies Minor

Code	Title	Hours
Requirements		
CLT 2000	The American Constitutional Tradition	3
CLT 3000	The Art of Statesmanship and the Civic Life	3
CLT 3010	The Art of Rhetoric and the Civic Life	3
CLT 3020	Liberalism and Conservatism in America	3
CLT 3030	Model U.S. Senate	3
CLT 3040	Constitutional Democracy and Democratic Citizenship	3
Select two of the following		6
CLT 3030	Model U.S. Senate [1]	
CLT 3500	Civic Discourse	
CLT 3510	Competing Theories of Justice	
CLT 3750	The Empire of Modern Science	
CLT 3990	Special Topics in Civic Thought	
ECON 4410	American Economic History [2]	
Total Hours		**24**

[1] CLT 3030 may be retaken as an elective.
[2] ECON 1150 and ECON 1200 are prerequisite courses for ECON 4410

- Students will be able to explain the principles, ideas and institutions of a constitutional political order.
- Integrate the practice of leadership and rhetorical skills with knowledge of American politics, history, democratic theory, and current debates
- Apply the skills of excellent written and oral communication to complex civic issues
- Demonstrate knowledge of how the American government works, the reasons for its structure, and the influence of this structure on society

Science, Technology, and Society, Minor

Code	Title	Hours
Requirements		
CLT 2750	Complex Leadership Challenges	1
CLT 3000	The Art of Statesmanship and the Civic Life	3
CLT 3010	The Art of Rhetoric and the Civic Life	3
CLT 3500	Civic Discourse	3
CLT 3750	The Empire of Modern Science	3
Select one of the following		3
CLT 2000	The American Constitutional Tradition	
CLT 3020	Liberalism and Conservatism in America	
CLT 3030	Model U.S. Senate	
CLT 3040	Constitutional Democracy and Democratic Citizenship	
CLT 3510	Competing Theories of Justice	
CLT 3990	Special Topics in Civic Thought	
ECON 4410	American Economic History [1]	
Total Hours		**16**

[1] ECON 1150 and ECON 1200 are prerequisite courses for ECON 4410

- Assess and respond to leadership challenges in applied science using principles and skills of liberal arts
- Integrate lessons from leaders in engineering, academia, business, and politics in an applied science career
- Students will practice the skills of disciplined communication and learn to apply these skills in the context of engineering leadership
- Examine the intersection of technical expertise, government, and civic engagement

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Accounting (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) or (ACCT 5310 with a minimum grade of C and ACCT 5110 with a minimum grade of C)
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 recipts.
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 3000 Introduction to Professional Studies
[3 credit hours]
This course builds advanced research and information literacy skills for professional contexts. Students learn to identify, evaluate, and synthesize career-relevant information, understand how information is created and used within professional communities, and apply research to informed decision-making. Ethical use of information technologies, including artificial intelligence, is emphasized.
Term Offered: Spring, Fall

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 is designed to assist students with their career development and readiness post-graduation. The course will utilize the National Association of Colleges and Employers (NACE) career readiness competencies as a guide to bring awareness to students' strengths and weaknesses regarding professional growth. The competencies are: Career & Self-Development, Communication, Critical Thinking, Equity & Inclusion, Leadership, Professionalism, Teamwork, and Technology. The course will result in students developing a personal brand, so that they are able to market themselves along with their degree post-graduation.
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 idealogical 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 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 & 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 entrepeneurial aspirations and the actual entrepeneurial 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 Enviornment
[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 ecotoursim 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, archaeology, biological anthropology, and linguistics. (not for major credit)
Term Offered: Spring, Summer, Fall
Core Social Sciences, OT36 Social Science

ANTH 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

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, Multicultural Non-US Diversity, 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 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 ecotoursim 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 Subsaharan Africa
[3 credit hours]
The cultures and societies of the Subsaharan peoples of Africa.
Prerequisites: ANTH 2800 with a minimum grade of D-
Term Offered: Spring, Fall
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 protfolio 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]
This course teaches methods of excavation and recovery of archaeological data. The field school is conducted during excavation of a historic site in the Toledo area.
Term Offered: Summer

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: Spring, 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.
Term Offered: Spring, Fall

ANTH 4560 Ethnographic Fieldwork
[6 credit hours]
Consists of field work involving the student in meaningful research problems at the community level. Introduces the student to the methods and problems of participant research.
Term Offered: Summer, Fall

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 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 & 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 comtemporary issues realting 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 wheh 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 & 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]
Independent study in studio topics with approval from instructor. May be repeated when the topic varies. Permission of instructor only. Grading is Pass/NC. This course has a lab fee associated.
Term Offered: Spring, Fall

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 explored as the rationale for contemporary curricula in art education. This course has a prerequisite of an upper division score of 1 and is a corequisite with AED 3510 Art Education Practicum: Secondary.
Prerequisites: Upper Division with a score of 1
Corequisites: AED 3510
Term Offered: Spring

AED 3510 Art Education Practicum: Secondary
[1 credit hour]
This practicum is a supervised opportunity for students to gain experience in the classroom and other settings that provide instruction to children to students in a Secondary environment (Grades 6-12). The course assists students in acquiring the necessary knowledge and skills needed to function as an art educator in a changing and diverse society through the act of observing and assisting a mentor teacher assigned by the University, and focuses on lesson plan implementation, differentiated instruction, behavior management strategies and assessment of student learning in their practicums. Furthermore, field activities assist students in understanding learners and the learning processes; gaining experience using instructional technology necessary for professional practice; and working effectively in both professional and community roles. This course has a prerequisite of an upper division score of 1.
Prerequisites: Upper Division with a score of 1
Corequisites: AED 3500
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 on the ways art educators develop and implement an art education curriculum in schools, with a particular focus on art history and primary school (K-5) environments. This course has a prerequisite of an upper division score of 1 and is a corequisite with AED 4460 Art Education Practicum: Primary.
Prerequisites: Upper Division with a score of 1
Corequisites: AED 4460
Term Offered: Fall

AED 4460 Art Education Practicum: Primary
[1 credit hour]
This practicum is a supervised opportunity for students to gain experience in the classroom and other settings that provide instruction to children to students in a Primary environment (Grades K-5). The course assists students in acquiring the necessary knowledge and skills needed to function as an art educator in a changing and diverse society through the act of observing and assisting a mentor teacher assigned by the University, and focuses on lesson plan implementation, differentiated instruction, behavior management strategies and assessment of student learning in their practicums. Furthermore, field activities assist students in understanding learners and the learning processes; gaining experience using instructional technology necessary for professional practice; and working effectively in both professional and community roles. This course has a prerequisite of an upper division score of 1.
Prerequisites: Upper Division with a score of 1
Corequisites: AED 4450
Term Offered: 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 & 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
Core Arts & Humanities

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
Core Arts & Humanities

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 & Humanities

ARTH 2100 Asian Art
[3 credit hours]
An introduction to the architecture, painting and sculpture of India, China and Japan and their relationship to the major religions and philosophies of each culture. Web-assisted course.
Multicultural Non-US Diversity

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 & 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 4350 Global Art Market
[3 credit hours]
Welcome to ARTH 4350: Global Art Market – WAC. This course is for anyone who is interested in the business of art in today's market. In this course, we will learn about the history and current state of the global art market and its broad range of institutions, including private galleries, art fairs, creative economies, arts commissions and centers, international auction houses, and major museums. In addition to readings, discussions, various writings, and class presentations, we will have conversations with professionals at the Toledo Museum of Art and the Arts Commission of Greater Toledo, local gallerists, and professionals from throughout the United States and Europe.
Term Offered: 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 (CAD) and numerical analysis software required for the solution of bioengineering problems. This course includes creation of 3D models and assemblies, engineering drawings, and geometric dimensioning and tolerancing. Numerical analysis includes creating program flowcharts, writing programs, and visually representing data.
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, governmental regulation and FDA approval processes.
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
[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 4530 Microbiome and Multi-Omics
[3 credit hours]
Microbiome indicates a group of microbes, and multi-omics are biological tools to understand the role of the microbiome in nature. The course covers the basics of microbiology to the most recent microbiome research and application to various fields such as engineering, environment, and human health. Therefore, the course will be useful, especially for the students who do not have much background knowledge on microbiology but want to have a broad view of how microbes work for us. The class will provide fundamental knowledge of microbiology to the students with different training and backgrounds, such as engineering, science, pharmacy, and medicine. Hands-on experience in the lab as well as with the computers will greatly support students engage the course concepts of microbiome and multi-omics. At the end of the course, students will understand how microbes contribute to environmental sustainability, engineering processes, and human health. Must be junior or senior to enroll.
Term Offered: Spring

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, Fall

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, Summer, 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 and Clinical Significance
[2-3 credit hours]
Provides hands-on, authentic research experience and a comprehensive understanding of the scientific process and clinical significance. It may be repeated once for credit, and 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: Spring, 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 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, Fall

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, Fall

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 liner 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 (may be taken concurrently) with a minimum grade of D- or ACTG 1040 (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
[3 credit hours]
The pedagogical and management skills introduced in CTE 4010 and CTE 4030 (Summer Workshop) are integrated in an applied setting such as a classroom. Learning profiles; employability skills; community partnerships; school-based and work site learning are foundational for student research, reflection, and inquiry. Students are required to develop and apply pedagogical and management skills related to the career technology setting. During these applications, students will be cognizant of and sensitive to issues of diversity, equity and special populations.
Term Offered: Spring, Fall

CTE 4070 Methods Of Teaching Career And Technical Education II
[3 credit hours]
The pedagogical and management skills introduced in CTE 4050 are integrated in an applied setting such as a classroom. Learning profiles; employability skills; community partnerships; school-based and work site learning are foundational for student research, reflection, and inquiry. Students are required to develop and apply pedagogical and management skills related to the career technology setting. During these applications, students will be cognizant of and sensitive to issues of diversity, equity and special populations.
Term Offered: Spring, Fall

CTE 4110 CTE Program Guidance and Trends
[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 necessary to meet these standards are: a clear mission; operational goals; specific competencies of an assessment system and the latest trends in Career and Technical Education.
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 credit hours]
A planned field experience held in public school classrooms under the direction of University Supervisors. Practicing teacher observed planning, presenting and demonstrating teaching skills and managing the laboratory and classroom. During this planned three (3) semester hours the University of Toledo instructor will visit the classroom and laboratory for practical teacher observation.
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 Environmenntal 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, adsorption, extraction, and membrane separations.
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. Co-requisite: CHEM 1230.
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
Corequisites: CHEM 1230
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 spectrocscopic 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: Measurement and Modeling of Chemical Phenomena
[0-2 credit hours]
This course provides hands-on experience with modern techniques and instrumentation used to measure and model the behavior of chemical systems. Students will measure molecular properties such as thermodynamic parameters, reaction kinetics, and spectroscopic characteristics. Emphasis on connecting experimental data to theoretical models through computational analysis and quantitative reasoning and strengthening problem-solving skills, experimental design, and the interpretation of complex data in the context of real-world chemical phenomena. Provides practical experience to complement concepts learned in CHEM 3710, CHEM 3730, and CHEM 4570.
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: Practical Inorganic and Materials Chemistry
[2 credit hours]
This course explores the synthesis, characterization, and reactivity of inorganic compounds. Students will prepare coordination complexes, main-group compounds, and solid-state materials while gaining experience with advanced techniques such as powder X-ray diffraction, thermogravimetric analysis, scanning electron microscopy, dynamic light scattering, absorption spectroscopy, magnetic measurements, and heteroatom nuclear magnetic resonance spectroscopy. The course integrates experimental design with modern applications in catalysis, nanomaterials, and functional materials chemistry, and complements CHEM 3610, CHEM 4800, CHEM 4810, and CHEM 4830.
Prerequisites: CHEM 3610 with a minimum grade of C- or CHEM 4800 with a minimum grade of C- or CHEM 4810 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. Prerequisite: Permission of department.
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 chlemistry 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 or PHYS 3310 with a minimum grade of C or PHYS 4630 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: Instrumental Analysis of Molecules and Materials
[2 credit hours]
This capstone laboratory course uses advanced analytical and instrumental techniques to investigate the composition, structure, and properties of chemical, biochemical, and materials systems. Students will integrate and apply concepts and skills from prior courses to design and carry out multifaceted experiments using spectroscopy, chromatography, electrochemistry, and microscopy to solve real-world analytical challenges. Through guided inquiry and independent projects, students will develop proficiency in modern instrumentation and data-driven problem solving relevant to research, industry, and graduate-level study. The course is a practical supplement to CHEM 4300.
Prerequisites: 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]
Practice in using and understanding Chinese to develop listening, speaking, reading and writing skills. Pronunciation, grammar, vocabulary and cultural topics. Lab practice required. (Not for major credit)
Prerequisites: (CHIN 1110 with a minimum grade of D- and CHIN 1120 with a minimum grade of D-)
Term Offered: Spring, Fall
Core Arts & Humanities

CHIN 2150 Intermediate Chinese II
[3 credit hours]
This course focuses on developing listening, speaking, reading, and writing skills in Chinese. The course emphasizes pronunciation, grammar, vocabulary, and cultural topics. Lab practice is required. (This course does not count toward a major.)
Prerequisites: (CHIN 1110 with a minimum grade of D- and CHIN 1120 with a minimum grade of D- and CHIN 2140 with a minimum grade of D-)
Term Offered: Spring, Fall
Core Arts & Humanities

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- or PHYS 2140 with a minimum grade of D-) or (MATH 1920 with a minimum grade of D- and PHYS 2130 with a minimum grade of D- or PHYS 2140 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
[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- or PHYS 2140 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, Fall

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 4530 Microbiome and Multi-Omics
[3 credit hours]
Microbiome indicates a group of microbes, and multi-omics are biological tools to understand the role of the microbiome in nature. The course covers the basics of microbiology to the most recent microbiome research and application to various fields such as engineering, environment, and human health. Therefore, the course will be useful, especially for the students who do not have much background knowledge on microbiology but want to have a broad view of how microbes work for us. The class will provide fundamental knowledge of microbiology to the students with different training and backgrounds, such as engineering, science, pharmacy, and medicine. Hands-on experience in the lab as well as with the computers will greatly support students engage the course concepts of microbiome and multi-omics. At the end of the course, students will understand how microbes contribute to environmental sustainability, engineering processes, and human health. Must be junior or senior to enroll.
Term Offered: Spring

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: Summer, Fall

CIVE 4690 Sustainability Engineering
[3 credit hours]
Course develops students' abilities to apply the principles of sustainability to engineered sysems. 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 involing uncertain and probabilistic phenomena. Decision-making with multiple objectives, monte carlo simulation, reliability based design, and Markov process are studied.
Term Offered: Spring, 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 Communication Principles And Practices
[3 credit hours]
An introductory course that provides instruction and practice in human communication including interpersonal communication, organizational strategic communication, digital communication and media communication.
Term Offered: Spring, Summer, Fall
Core Arts & Humanities

COMM 2000 Media Communication and Society
[3 credit hours]
This course is an 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]
This course is an 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 C-
Term Offered: Spring, Fall

COMM 2130 Media Writing 1
[3 credit hours]
This course is an applied overview of reporting and writing for all media formats: print, digital, broadcasting, and public relations. Emphasis will be placed on journalistic ethics, credibility of information and accuracy.
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 course introduces the student to the terminology and single camera production procedures used in field television production and serves as a foundation for story-telling through this medium.
Term Offered: Spring, Summer, Fall

COMM 2210 Introduction to Audio Production
[3 credit hours]
This course introduces the terminology and procedures used in audio production, such as studio recording and editing sound. Students will be instructed in the use of audio production equipment and the techniques used in producing various types of audio productions, including the production of commercials, public service announcements, and demos for announcing jobs.
Term Offered: Spring, Fall

COMM 2300 Photojournalism
[3 credit hours]
This course provides a foundational understanding of the study and practice of photography as a major component of modern journalism. Emphasis is placed on using still and motion visuals to tell compelling and accurate news stories.
Term Offered: Spring, Fall

COMM 2500 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]
This course introduces students to the principles, theories, and practice of oral communication, with an emphasis on developing applied skills in speech preparation, research, organization, verbal and nonverbal delivery, and critical listening. Students will focus on adapting messages for diverse audiences and contexts, making ethical choices in selecting and attributing ideas and evidence, and building confidence as public speakers. The knowledge and experience gained will equip students for success in academic, professional, personal, and social contexts.
Term Offered: Spring, Summer, Fall
Core Arts & Humanities

COMM 2720 Introduction to Public Relations
[3 credit hours]
This course introduces public relations as a strategic, ethical communication practice. Students examine public relations' evolution, key theories, communication models, and its role within integrated communication. Emphasis is placed on global influences and the impact of public relations on organizations and communities. Students learn to apply theory to practice, develop effective strategies, and explore career paths and the future of the profession.
Term Offered: Spring, Fall

COMM 2820 Group Communication
[3 credit hours]
An introductory course on the 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]
This course is a review and application of interpersonal communication theory and research in a variety of one-to-one social contexts. Explore the development, maintenance, and termination of interpersonal relationships.
Term Offered: Spring, Summer, Fall
Core Arts & 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]
This course is 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 2
[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 C-
Term Offered: Spring, Fall

COMM 3150 Feature Writing
[3 credit hours]
This course will teach students how to identify, research, report and write non-fiction feature articles that combine fact-based journalistic writing with non-fiction writing techniques, including characters development, description and narrative arc.
Prerequisites: COMM 2130 with a minimum grade of C-
Term Offered: Spring, Fall

COMM 3210 Advanced Audio Production
[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 C-
Term Offered: Spring, Fall

COMM 3220 Multi-Camera Television Studio Production
[3 credit hours]
This course provides comprehensive hands-on training in multi-camera production in a TV studio setting. Students will gain practical experience in camera techniques, audio engineering, lighting design, video switching, and production coordination while working collaboratively on live and recorded broadcasts within a simulated broadcast environment.
Prerequisites: COMM 2160 with a minimum grade of C-
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 live broadcast on the ESPN digital platforms, for live display in various venues such as the Glass Bowl, Savage Arena, Doermann Theatre, and online live streaming to YouTube.
Term Offered: Spring, Fall

COMM 3270 Multimedia Newswriting
[3 credit hours]
This course teaches students to gather and present news stories across multiple media platforms, including text, audio, video, and graphics, by developing skills in writing for different formats while incorporating multimedia tools to create engaging and comprehensive news packages.
Prerequisites: COMM 2130 with a minimum grade of C-
Term Offered: Summer, Fall

COMM 3330 Public Relations and Principles of Advertising
[3 credit hours]
This course explores public relations and advertising as key forms of strategic communication that shape meaning, identity, and public discourse. Emphasis is placed on how media platforms influence and shape consumer behavior, exploring the complex relationship between advertising, branding, marketing strategies, and societal values within a culture focused on consumption, analyzing how advertising interacts with direct communication efforts such as promotion and outreach.
Term Offered: Spring, Fall

COMM 3340 Visual Communication
[3 credit hours]
This practice-based course introduces students to the principles of visual communication through a hands-on approach. Students will learn how visual and textual elements work together to inform, persuade, and entertain diverse audiences. Using industry-standard tools, they will design and produce a range of multimedia artifacts, including digital photo galleries, posters, brochures, newsletters, memes, and infographics.
Term Offered: Spring, Fall

COMM 3380 Media Producing and Performance
[3 credit hours]
This course gives students the experience of being in front of the camera through a variety of performance assignments allowing them to practice 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 Strategies
[3 credit hours]
This intermediate course focuses on the presence of social media in various contexts of communication. Students learn strategies for using social media in these contexts to effectively communicate with others. The strategies covered 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; and planning, executing, and evaluating social media campaigns. Students earn an external social media certificate and use their acquired knowledge to analyze the effectiveness of social media communication strategies.
Prerequisites: COMM 2500 with a minimum grade of C-
Term Offered: Spring, Fall

COMM 3710 Podcasting
[3 credit hours]
In this course, students will focus on developing the necessary 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 for a client.
Prerequisites: COMM 2210 with a minimum grade of C-
Term Offered: Spring, Fall

COMM 3750 Cultural Diversity in Communication
[3 credit hours]
This course is a review and application of cultural diversity theory and research in a variety of communication contexts. 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.
Term Offered: Spring, Fall

COMM 3760 Health Communication
[3 credit hours]
This course is a review and application of health communication theory, research, and practice with a focus on culture and diversity.
Term Offered: Spring, Fall

COMM 3770 Modern Dating and Communication
[3 credit hours]
This course critically examines the evolution of human connection, the dating habits of humans in the modern era, and the increasing role that communication technologies play in the process.
Term Offered: Spring, Fall

COMM 3820 Persuasion Theory
[3 credit hours]
This course is an examination of the theory and practices of persuasion and compliance gaining, specifically as they relate to persuasive practices in everyday public communication and professional communication contexts.
Term Offered: Spring, Fall

COMM 3850 Research Methods in Everyday Life
[3 credit hours]
This course is an 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]
This course provides a comprehensive overview of professional business communication principles, equipping students with the ability to effectively compose various written documents, deliver impactful presentations, and navigate complex communication situations within the workplace. Students will practice tailoring their communication style to different audiences, utilizing appropriate technology, and adhering to ethical standards in professional communication.
Term Offered: Spring, Summer, Fall

COMM 4090 Media Communication Ethics
[3 credit hours]
This course introduces students to the fundamental principles of communication ethics and the impact of ethical decision-making in media and communication. Students will explore how values shape communication across various settings, including personal interactions, media, and organizational contexts. Through discussions, case studies, and critical analysis, students will learn to recognize ethical dilemmas, understand diverse perspectives, and apply ethical frameworks to real-world communication issues. The course encourages students to think critically about the responsibilities of individuals and organizations in maintaining ethical standards in a rapidly evolving media landscape.
Term Offered: Spring, Fall

COMM 4100 Multimedia Journalism
[4 credit hours]
This course provides hands-on experience in producing a student-run broadcast news program, encompassing all aspects of news gathering, writing, video production, editing, and on-camera delivery, allowing students to create a professional-quality newscast while learning essential broadcast journalism skills and ethics in a simulated newsroom environment; emphasis will be placed on teamwork and collaborative production.
Prerequisites: COMM 2130 with a minimum grade of C- and COMM 2160 with a minimum grade of C- and COMM 2220 with a minimum grade of C- or COMM 3380 with a minimum grade of C-
Term Offered: Spring, Fall

COMM 4220 Advanced Television Production
[4 credit hours]
This course builds upon foundational skills, focusing on advanced techniques, aesthetics, and the practical application of production concepts for effective communication in various media contexts. Includes working with remote equipment and digital editing software.
Prerequisites: COMM 2160 with a minimum grade of D-
Term Offered: Spring, Fall

COMM 4270 Special Event Planning
[3 credit hours]
This course is an application of practices and procedures associated with identification, analysis, planning, evaluation, and control of the operational, fiscal, and legal risks of special event planning.
Term Offered: Spring, Fall

COMM 4330 Integrated Media
[3 credit hours]
This course explores the creation and analysis of content across multiple media platforms, including print, digital, video, and social media, focusing on how to strategically combine these elements to reach audiences effectively, while developing skills in production, design, writing, and critical media analysis across various formats; students will often produce projects that integrate diverse media elements to address real-world communication challenges.
Prerequisites: COMM 2130 with a minimum grade of C- or COMM 2150 with a minimum grade of C- or COMM 2500 with a minimum grade of C-
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 4500 Social Media Campaigns
[3 credit hours]
This course allows students to 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 focuses 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.
Prerequisites: COMM 3500 with a minimum grade of C-
Term Offered: Spring, Fall

COMM 4630 Public Relations Campaigns
[3 credit hours]
This course equips students with the skills to design and execute strategic public relations campaigns. Emphasis is placed on crafting persuasive messages across diverse media channels, integrating emerging trends and technologies, and producing a portfolio showcasing research, writing, and multimedia materials.
Prerequisites: COMM 3720 with a minimum grade of C-
Term Offered: Spring, Fall

COMM 4640 Public Relations Case Studies
[3 credit hours]
This course focuses on analyzing successful and unsuccessful public relations strategies across various industries. Through case studies and discussions, students will explore what drives effective practices and how to adapt them for diverse organizational needs.
Prerequisites: COMM 3720 with a minimum grade of C-
Term Offered: Spring, Summer, Fall

COMM 4820 Family Communication
[3 credit hours]
This course 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, Fall

COMM 4830 Gender, Culture and Communication
[3 credit hours]
This course explores how gender and culture simultaneously shape and are shaped by communication through relationships, institutions, and society.
Term Offered: Spring, Summer, Fall

COMM 4840 Advanced Interpersonal Communication
[3 credit hours]
This course is an advanced approach to interpersonal communication focusing on research and theory. It will provide students the chance to analyze their interpersonal communication skills and further expand competency through application in personal and professional life situations.
Prerequisites: COMM 2840 with a minimum grade of C-
Term Offered: Spring, 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]
This course is an application of knowledge and skills through a project or research investigation related to an area of communication.
Term Offered: Spring, Summer, Fall

COMM 4940 Communication Internship
[1-6 credit hours]
This course enables students to earn credit for qualifying internships/job experiences in their areas of study (Digital Communication, Interpersonal Communication, Strategic/Organizational Communication or Media Communication). 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 & 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 bride 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, Realtext, Realpix and XML. The course also covers Frames, META Tags, Optimizing Speed, Cookies, Imagemapping (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: Spring, 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 Develpmnt
[3 credit hours]
Using Dreamveaver 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 2000 The American Constitutional Tradition
[3 credit hours]
This course will examine the American constitutional order, from its philosophical origins in the ancient and modern Western tradition to the contributions of 20th century political theorists. We will seek to understand how the American Constitution was created and how it has been interpreted and challenged through various constitutional crises. To this end, we will study the documents and speeches that have shaped America from the Founding era to the present day, including the Declaration of Independence, the U.S. Constitution, The Federalist, and the writings of leaders such as Abraham Lincoln, Franklin D. Roosevelt, and Martin Luther King, Jr.
Term Offered: Spring, Fall
Core Arts & Humanities

CLT 2500 Landmark Cases in American Constitutionalism
[3 credit hours]
This course will examine landmark Supreme Court cases–cases that have significantly shaped the political, legal, and cultural landscape in America. The cases will range from the Founding era to today, and they will cover topics such as separation of powers, racial equality, First Amendment freedom of speech and religion, abortion, and marriage. In examining these cases, we will consider the proper role of the judiciary in America and whether it is indeed the "least dangerous branch," as Alexander Hamilton envisioned it to be nearly 250 years ago. In addition to studying Supreme Court cases, we will also examine the writings of judges and statesmen concerning the role of the judiciary in our constitutional republic.
Prerequisites: CLT 2000 (may be taken concurrently) with a minimum grade of D-
Term Offered: Spring, Summer, Fall

CLT 2750 Complex Leadership Challenges
[1 credit hour]
This seminar connects students with leaders in the world of business, government, and technology. The seminar will meet once per month to meet with a visiting speaker. Brief writing assignments will be due before and after each seminar. Seminar requirements will vary and will require students to communicate about and generate innovative approaches to the most current complex issues.
Term Offered: Spring

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 3020 Liberalism and Conservatism in America
[3 credit hours]
This course examines the development and ongoing dialogue between liberal and conservative political thought in America. Students will explore foundational texts from both traditions, analyzing how they have shaped American political discourse from the founding era to the present. The course places special emphasis on key debates about individual liberty, tradition, progress, markets, and social justice. Through careful reading of paired texts from liberal and conservative thinkers, students will develop a deeper understanding of America's major political-philosophical traditions.
Term Offered: Spring, Fall

CLT 3030 Model U.S. Senate
[3 credit hours]
Through the recreation of historical Senate debates, students will learn the nature of statesmanship and the distinct function of the Senate in our republic. We will begin by studying the creation of the U.S. Constitution, focusing on the separation of powers and how the American Founders envisioned the role of Congress within it. We will then study the development of Congress throughout U.S. history. This study will include the simulation of three historic Senate debates, in which students will strategize and debate legislation and other congressional actions. Topics may include foreign policy, treaty ratifications, constitutional amendments, and presidential impeachments.
Term Offered: Spring, Fall

CLT 3040 Constitutional Democracy and Democratic Citizenship
[3 credit hours]
This course examines the theoretical foundations and practical challenges of constitutional democracy, combining insights from political economy and moral philosophy. Students will explore how constitutional systems manage competing interests, how democratic institutions function, and what ethical obligations citizens have in a democracy. Topics include constitutional design, public choice theory, voting behavior, religious freedom, and civic duties. The course emphasizes both formal analysis of democratic institutions and normative questions about democratic citizenship.
Term Offered: Spring, Fall

CLT 3050 Model US Senate Extension
[1 credit hour]
This 1-credit course allows students who already successfully completed the 3-credit Model U.S. Senate course to continue participating in the recreation of historical Senate debates. Through these debate simulations, students will continue to learn the nature of statesmanship and the distinct function of the Senate in our republic. Students will join those enrolled in the 3-credit course to strategize and debate legislation and other congressional actions. Topics may include foreign policy, treaty ratifications, constitutional amendments, and presidential impeachments.
Prerequisites: CLT 3030 with a minimum grade of D-
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 3750 The Empire of Modern Science
[3 credit hours]
This course examines the ascendance of science as leader of the modern world. Students examine the science's leadership as a proposition: Are science and technology sufficient to guide human life and society? Readings are drawn from primary sources in the history and philosophy of science from ancient to modern times. Students will wrestle with difficult questions and will engage at length critiques of science and Western liberalism. The course also examines the ambitions and limits of the modern scientific enterprise and investigates whether scientific education adequately equips young scientists to serve as leaders and stewards of humanity's future.
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

CLT 4900 Constitutional Studies Senior Seminar
[3 credit hours]
This capstone course in Constitutional Studies is designed to help students integrate the knowledge and skills they have gained throughout the major. Through the study of selected authors, texts, or themes chosen by the instructor, students will deepen their understanding of constitutional principles, political thought, and civic life. The course culminates in the research and writing of a senior thesis, in which students articulate and defend a substantive argument on a topic of their choosing in consultation with the instructor. Each student will present the completed thesis in a public forum.
Prerequisites: CLT 2000 (may be taken concurrently) with a minimum grade of D- and CLT 2500 (may be taken concurrently) with a minimum grade of D- and CLT 3000 (may be taken concurrently) with a minimum grade of D- and CLT 3010 (may be taken concurrently) with a minimum grade of D-
Term Offered: Spring, Fall

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 Building Information Modeling
[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.
Corequisites: CIVE 1100
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.
Term Offered: Spring, 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
[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- or CIVE 1110 with a minimum grade of D-
Corequisites: CET 4460
Term Offered: Spring

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]
This 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. Project supervision, OSHA construction safety and engineering ethics pertaining to construction will be covered.
Prerequisites: CET 2060 (may be taken concurrently) 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: Spring, Fall

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, Fall

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: Spring, 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, Fall

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: Spring, 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, Fall

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/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.
Term Offered: Spring, Summer, Fall

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]
Practicum is a supervised opportunity for students to gain experience in the classroom and other settings that provide instruction to children in a pre-kindergarten classroom. Students will focus on lesson plan implementation, differentiated instruction, behavior management strategies and assessment of student learning in their practicums. The course further assists students in acquiring the necessary knowledge and skills needed to function as an educator in a changing and diverse society. Furthermore, the field activities will assist students in the field of early childhood education to: understand learners and the learning processes; gain experience using instructional technology necessary for professional practice; work effectively in both professional and community roles.
Prerequisites: Upper Division with a score of 1
Corequisites: CIEC 4070
Term Offered: Fall

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
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.
Term Offered: Spring, 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 descoveries. Students will learn how to assess the scientific thinking of young children appropriately, using formal and infornal strategies.
Corequisites: CIEC 4480
Term Offered: Spring, Fall

CIEC 4480 Practicum II
[1 credit hour]
Practicum is a supervised opportunity for students to gain experience in the classroom and other settings that provide instruction to children in a Kindergarten through 5th grade classroom. Students will focus on lesson plan implementation, differentiated instruction, behavior management strategies and assessment of student learning in their practicums. The course further assists students in acquiring the necessary knowledge and skills needed to function as an educator in a changing and diverse society. Furthermore, the field activities will assist students in the field of early childhood education to: understand learners and the learning processes; gain experience using of instructional technology necessary for professional practice; work effectively in both professional and community roles. Students in this field practicum will focus their planning on Literacy, Reading Development, Phonics and Science content standards, while practicing integrated curricular design and developmentally appropriate practices for children in Kindergarten through 5th grade.
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 4460 with a minimum grade of C and Upper Division with a score of 1
Corequisites: CIEC 4770
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.
Prerequisites: Upper Division with a score of 1
Term Offered: Spring, Fall

CIEC 4770 Practicum III
[1 credit hour]
Practicum is a supervised opportunity for students to gain experience in the classroom and other settings that provide instruction to children in an early childhood setting. Students will focus on lesson plan implementation, differentiated instruction, behavior management strategies and assessment of student learning in their practicums. The course further assists students in acquiring the necessary knowledge and skills needed to function as an educator in a changing and diverse society. Furthermore, the field activities will assist students in the field of early childhood education to: understand learners and the learning processes; gain experience using of instructional technology necessary for professional practice; work effectively in both professional and community roles.
Prerequisites: CIEC 4480 with a minimum grade of C and Upper Division with a score of 1
Corequisites: CI 4510, 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]
Internship is a supervised opportunity for students to gain experience in the classroom and other settings that provide instruction to children in a primary education setting. Students will focus on lesson plan implementation, differentiated instruction, behavior management strategies and assessment of student learning in their internships. The course further assists students in acquiring the necessary knowledge and skills needed to function as an educator in a changing and diverse society. Furthermore, activities will assist students in the field of primary education to understand learners and the learning processes; gain experience using of instructional technology necessary for professional practice; work effectively in both professional and community roles.
Prerequisites: Upper Division with a score of 1 and CIEC 4770 with a minimum grade of C
Corequisites: CIEC 4900
Term Offered: Spring

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 Undergraudate 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 acquisition and instruction. Issues related specifically to the needs of English/Multiple Language Learners and learners with dyslexia are introduced.
Term Offered: Spring, Summer, Fall

CI 3430 Phonemic Awareness, Phonics and Fluency
[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.
Term Offered: Spring, Summer, Fall

CI 3460 Literacy Instruction: Comprehension, Vocabulary & Writing
[3 credit hours]
Literacy Instruction: Comprehension, Vocabulary & Writing is a comprehensive exploration of the developmental and instructional implications of reading comprehension, vocabulary acquisition, and writing instruction. Along with these core aspects of reading, major skill domains that contribute to the development of written expression are explored. Principles of explicit and systematic instruction of these core aspects of reading and writing are studied and practiced.
Prerequisites: CI 3400 with a minimum grade of C
Term Offered: Spring, Summer, 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 4550 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: Upper Division with a score of 1
Corequisites: CI 4140, CI 4320, CI 4550, CI 4680, CI 4720
Term Offered: 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
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
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
Corequisites: CI 4050, CI 4060, CI 4070, CI 4080, CI 4150, CI 4160, CI 4170, CI 4180, SPAN 4120
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
Corequisites: CI 4190
Term Offered: 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
Corequisites: CI 4210, CI 4220, CI 4230, CI 4240, CI 4250, CI 4260, CI 4270, CI 4280
Term Offered: Fall

CI 4400 Content Area Literacy In Middle Grades
[3 credit hours]
This course is focused 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. Study of the integration of reading comprehension, writing, oral language and word skill development in content reading and writing. Attention will be given to instructional methods as well as assessment practices.
Prerequisites: Upper Division with a score of 1
Term Offered: Spring, Fall

CI 4470 Literacy Assessment and Remediation
[3 credit hours]
Examine current evidence-based 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: Upper Division with a score of 1 or CI 3400 with a minimum grade of C and CI 3430 with a minimum grade of C and CI 3460 with a minimum grade of C
Term Offered: Spring, Summer, Fall

CI 4490 Content Area Literacy
[3 credit hours]
Study of the integration of reading comprehension, writing, oral language and word skill development and digital literacies in all areas of learning. 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
Corequisites: CI 4190
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: Upper Division with a score of 1
Corequisites: CI 4190
Term Offered: 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
Corequisites: CI 4190
Term Offered: 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 4390 with a minimum grade of C and CI 4260 with a minimum grade of C or CI 4220 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
Corequisites: CI 4730, CI 4740, CI 4760, CI 4790
Term Offered: Spring

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

Cyber Security (CYBR)

CYBR 1400 Ethical Behavior in Computing
[4 credit hours]
This course will teach the ethical dilemmas for computer use, the software engineering code of ethics and professional practice, and basic rules for computer ethics. The course will focus on the commitment software engineers have to the public, client and employer, product, judgement, management, profession, colleagues, and self.
Term Offered: Spring, Fall

CYBR 2000 Cyber Law & Compliance, Intro to Cryptoanalysis & Generic Attacks
[4 credit hours]
An in-depth examination of the law dealing with computers and the Internet, including such issues as intellectual property, electronic commerce, information privacy, freedom of expression, cyber crime and jurisdiction. Included are detailed analyses of significant legal case studies plus review of applicable federal and state legislation. The course addresses key concepts in building and breaking ciphers by making, testing, securing and cracking programs that encrypt text with classical ciphers like the transposition cipher, Vigenère cipher, etc. Students will learn about major topics in crypt analysis. Also, students will study and analyze attack methods and algorithms in crypt analysis.
Prerequisites: CSET 1100 with a minimum grade of D-
Term Offered: Spring, Fall

CYBR 2410 Digital Forensics
[3 credit hours]
This course trains students on the procedures and techniques used to identify, extract, validate, document and preserve electronic evidence. Students completing this course will be familiar with the core computer science theory and practical skills necessary to perform basic computer forensic investigations, understand the role of technology in investigating computer-based crime, and be prepared to deal with investigative bodies at a basic level.
Prerequisites: CSET 1100 with a minimum grade of D-
Term Offered: Fall

CYBR 3200 Client-Server Security Models
[3 credit hours]
This course trains students to systematically identify vulnerabilities, analyzing their occurrence, make corrective action options, evaluate from the aspect of the client/server model, and discuss and implement prescriptive software security designs.
Prerequisites: CYBR 2410 with a minimum grade of D-
Term Offered: Spring, Fall

CYBR 3350 Managing Security Projects
[3 credit hours]
This course trains students on best practices on how institutions and organizations manage information risk through risk assessment practices and procedures.
Prerequisites: CYBR 2410 with a minimum grade of D-
Term Offered: Spring, Fall

CYBR 4200 Software Assurance
[4 credit hours]
Practices for ensuring quality through the software process. Topics include requirements elicitation, analysis and documentation, testing, and quality assurance management.
Prerequisites: CSET 3600 with a minimum grade of D-
Term Offered: Spring, Fall

CYBR 4500 Risk Vulnerability Analysis
[3 credit hours]
This course teaches risk vulnerabilities in an information network. Topics include administrating Linux and Microsoft servers together to provide infrastructure services to mixed clients. Topics covered are DNS; DHCP; file, web, mail, and directory security of these services; and best practices for combining and mixing server platforms in an enterprise environment.
Prerequisites: INFS 3400 with a minimum grade of D-
Term Offered: Spring, 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 4500 Applied Data Analytics 1 – Foundations and Automation with Excel VBA
[3 credit hours]
This course is designed for students with little to no prior programming experience in Excel VBA (Visual Basic for Applications). The course begins with Excel VBA basics and gradually builds toward automating processes using VBA. From basic spreadsheet operations to advanced task automation, students will learn how to design and execute an automation project, manage data, build custom solutions, and streamline repetitive tasks in real-world contexts. Topics include working with cells and ranges, input/output interactions, variables and arrays, logic and control structures, data cleaning, pivot tables, debugging, creating custom functions, user forms, handling files and events, security features, building dashboards, data visualization, and exporting reports.
Term Offered: Spring, Summer, Fall

DANN 4600 Applied Data Analytics 2 – Python Programming and Version Contro
[3 credit hours]
This hands-on, project-based course introduces students to the fundamentals of Python programming and version control using Git and GitHub. Designed for students with prior experience in Excel VBA or similar scripting, the course builds on existing logic and automation skills to explore more powerful tools for data manipulation, automation, and collaborative coding. Students will learn core Python concepts including data types, control structures, unctions, file input/output, working with Excel files, and Python standard libraries. Simultaneously, students will develop practical Git skills for tracking changes, collaborating with others, and managing real-world coding projects. Through individual and team-based projects, students will apply Python and Git to solve real-world problems, automate tasks, and work collaboratively using GitHub repositories. By the end of the course, students will be able to write clean, functional Python code and manage coding workflows in a collaborative environment.
Term Offered: Spring, Summer, 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 disability culture and its relationships to the dominant culture.
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 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 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]
In this course students will learn about perspectives on and contemporary issues about disability around the world. We will explore the cultural differences, power imbalances, and politics in the global disability landscape, thinking through disability’s relationship to these topics. Geopolitical area of focus may vary based instructor expertise.
*Writing Across the Curriculum
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 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 4700 Eugenics Past and Present
[3 credit hours]
This course provides a historical overview of the ideologies, implementation, and global spread of eugenics, primarily focusing on the United States but also including non-U.S. perspectives. We conclude by raising contemporary questions about eugenics, relating the past to the present.
Term Offered: Spring

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 4930 Disability and Social Services: Housing, Health, and Habilitation
[3 credit hours]
In this course, we use a disability studies approach to explore the social, cultural, and political dimensions of disability social services. Using an array of social scientific research methods and theory, we interrogate issues of stigma, authority and knowledge across an array of fields from direct care to social work to behavioral health services and more.
Term Offered: Spring, 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 (may be taken concurrently) 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

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 2000 Economics Proseminar
[1 credit hour]
Students are introduced to the academic and professional nature of the economics major. Topics covered include professional socialization, honors, portfolio construction, preparation for graduate studies, and career development.
Term Offered: Spring, Fall

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 3060 Economics of Education
[3 credit hours]
Explore the economics of the education industry in this non-technical, Writing Across the Curriculum (WAC) class. Investigate the funding models in K-12 and higher education, the relationship between funding and outcomes, and the job market for educators.
Term Offered: Spring

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 enironmental 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 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, Fall
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 mirco-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 forcasting, 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, Summer, Fall

ECON 3980 Current Economic Issues
[3 credit hours]
Course content varies as changes in the interaction between economic topics and writing assignments occur.
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, Fall

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: Spring, Fall

ECON 4410 American Economic History
[3 credit hours]
Exploration of economic growth in America from pre-Columbian times to the present day. Analysis of economic institutions, technological change, industrialization and standards of living.
Prerequisites: ECON 1150 with a minimum grade of D- or ECON 1200 with a minimum grade of D-

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, Fall

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]

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

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: Spring, 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

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
[4 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/subtracters 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 2010 Introduction to Artificial Intelligence
[3 credit hours]
This course combines lectures with interactive, hands-on activities using AI programs and vibecoding tools to introduce students to the fundamentals of AI and popular tools. It covers the basics of AI, machine learning, deep learning, generative AI, and data science. Students will develop practical skills alongside theoretical knowledge and will engage in ethical discussions about AI applications.
Term Offered: Spring, Summer, 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 couse. 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-) or (CSET 1200 with a minimum grade of D- and CSET 2230 with a minimum grade of D-)
Term Offered: Spring, Fall

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 2110 with a minimum grade of D- or CSET 2230 with a minimum grade of D-
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 propeties 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, Transmision, 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- or EECS 3540 with a minimum grade of D- or CSET 3150 with a minimum grade of D- or CSET 3300 with a minimum grade of D- or CSET 3250 with a minimum grade of D- or EET 3350 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
[4 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 3540 with a minimum grade of D- or CSET 2200 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- or MATH 2600 with a minimum grade of D- or MIME 4000 with a minimum grade of D- or ENGT 3010 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, Fall

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 contempoary 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
[3 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.
Prerequisites: EECS 3540 with a minimum grade of D-
Term Offered: Spring

EECS 4530 Computer Graphics I
[3 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.
Prerequisites: EECS 2510 with a minimum grade of D-
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 or CSET 2230 with a minimum grade of D)
Term Offered: Spring, Fall

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
[3 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-
Term Offered: Spring, Summer, Fall

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- or CSET 2200 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 mult-agent environments.
Prerequisites: EECS 2510 with a minimum grade of D-
Term Offered: Spring, Fall

EECS 4750 Machine Learning
[3 credit hours]
This course covers machine learning algorithms, theory and applications for decision tree, neural network, computational, Bayesian, evolutionary, and reinforcement learning.
Prerequisites: (MATH 1890 with a minimum grade of D- or MATH 2890 with a minimum grade of D-) and (MIME 4000 with a minimum grade of D- or EECS 3300 with a minimum grade of D- or MATH 4680 with a minimum grade of D- or MATH 2600 with a minimum grade of D-) and (EECS 1030 with a minimum grade of D- or CSET 1100 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 4770 Computer Hacking and Forensic Analysis
[3 credit hours]
This course is an introduction to discovering vulnerabilities, attacking/defending systems, responding to attacks, and identifying/designing controls for attack prevention. Topics include the evolution of hacking, penetration testing; cryptology; footprinting; vulnerability scanning and exploit; wireless, web, and database attacks; traffic analysis; incident response; and defensive technologies and controls.
Prerequisites: EECS 4720 (may be taken concurrently) with a minimum grade of D-
Term Offered: Spring, 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 4830 Artificial Neural Networks and Deep Learning
[3 credit hours]
This course deals with various neural network architectures and learning algorithms for the training networks. Topics include perceptron, basic learning algorithms, the delta learning rule, multilayer feed forward NNs, backpropagation and gradient decent algorithm, cost functions, overfitting, regularization, and convolutional networks.
Prerequisites: EECS 4750 with a minimum grade of D- or (MATH 1890 with a minimum grade of D- or MATH 2890 with a minimum grade of D-) and EECS 2510 with a minimum grade of D-
Term Offered: Spring, Fall

EECS 4840 Generative AI and Large Language Models
[3 credit hours]
This course explores generative AI with a focus on large language models (LLMs). Students will learn the theoretical foundations and practical applications of LLMs, including hands-on experience with open-source models like LLaMA 3 using Python. The course covers key applications in natural language processing, creative content generation, and other AI-driven fields. Ethical considerations and responsible AI practices are emphasized to prepare students for real-world challenges in advanced AI technologies.
Prerequisites: (MATH 1890 with a minimum grade of D- or MATH 2890 with a minimum grade of D-) and EECS 2510 with a minimum grade of D-
Term Offered: Spring, Fall

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

EET 4700 Electric-Vehicle Systems & Charging Infrastructure
[4 credit hours]
Design, integration, and validation of battery#electric drivetrains and Level#2 charging systems. Because the Switch EV is shared with MIME, physical access is limited to a two#week intensive block (Weeks#3#4); other drivetrain labs use Hardware#in#the#Loop (HIL) and the AutoEDU battery stand. This course provides hands-on activities on EV, batteries, and Level 2 EV charging station. Students will gain knowledge of EV components such as batteries, electric motors, inverters,
Prerequisites: EET 4350 with a minimum grade of D-
Term Offered: Fall

EET 4750 Renewable-Energy Microgrids for e-Mobility
[4 credit hours]
Integration of solar photovoltaic (PV), wind, and battery storage to supply EV charging in resilient microgrids. The Switch EV appears only in Week#11 for a live renewable#powered charging demo; all other labs rely on EMS trainers and the AutoEDU pack.
Prerequisites: EET 4700 (may be taken concurrently) with a minimum grade of D-
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.

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 D- 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 ides 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 Skls 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 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

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

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 3030 Careers for English Majors: Designing Your Life
[3 credit hours]
This course helps students chart a life- and career-path by leveraging the foundational tools of writing and literary study to imagine, analyze, and craft a life.
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 Gutenburg 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 Americanliterature, 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 3630 American Literature, Beginnings to 1865
[3 credit hours]
Study of the writing of colonial North America and the United States before 1865, in literary and historical contexts. 3 credits.
Term Offered: Spring, Fall

ENGL 3640 American Literature 1865 to the Present
[3 credit hours]
Study of the writing of the United States after 1865, in literary and historical contexts. 3 credits.
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 Latino Literature in the U.S.
[3 credit hours]
Introduction to Latino writers, literatures, and cultures in the United States from the 1960s to the present moment.
Term Offered: Spring, Fall

ENGL 3670 Literature of Marginalized Communities
[3 credit hours]
This course provides an overview of the U.S.'s literary and cultural heritage by examining recent works by authors of various cultural backgrounds. By engaging with poetry, fiction, and essays, students will strengthen foundational literacy skills—reading comprehension, vocabulary, and evidence-based writing—while analyzing how literature reflects themes such as community, youth, and labor. Students will also situate these texts in their historical and civic contexts, gaining insight into how literature contributes to broader understandings of American society, history, and government.
Term Offered: Spring, Fall

ENGL 3680 British Literature from the Middle Ages to 1789
[3 credit hours]
Study of the writing of the British isles before 1789, in literary and historical contexts. 3 credits.
Term Offered: Spring, Fall

ENGL 3690 British Literature from 1789 to the Present
[3 credit hours]
Study of the writing of the British isles after 1789, in literary and historical contexts. 3 credits.
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 form 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 Shakesepare'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 4110 Old English
[3 credit hours]
A study of phonology, morphology and syntax with representative readings in verse and prose.
Term Offered: Spring, Fall

ENGL 4190 Sociolinguistics
[3 credit hours]
Combines linguistic and societal concerns through reading of empirical research; includes issues of language variation and related larger constructs such as speech community, communicative competence, dialect, and language change.
Term Offered: Spring, 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 4340 Modern and Contemporary Drama
[3 credit hours]
Drama in English or translation from the late nineteenth century to the present.
Term Offered: Spring, Fall

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 Latino Literature
[3 credit hours]
This course examines the cultural production of Latino peoples in the nineteenth century U.S., the social and cultural impact of colonization in the Southwestern part of the U.S and the Atlantic world, identity formation among Hispanophone Black, Indigenous, and people of color (BIPOC), and what Latinidad looked like in the nineteenth century.
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 Writing Before The 20th Century
[3 credit hours]
Study of African American prose, poetry, drama and fiction from 1760 to 1915.
Term Offered: Spring, Fall

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
[3 credit hours]
The Honors Seminar is taken in conjunction with the Honors Thesis (ENGL 4960). Required of all candidates for departmental Honors.
Corequisites: ENGL 4960
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
[3 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: 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 2500 Introduction To Entrepreneurship for Non-Business Students
[3 credit hours]
Course is an introductory course about entrepreneurship designed specifically for all majors to provide a broad and interesting overview of the issues and opportunities involved in starting a new business It focuses on the entrepreneurial environment, opportunity recognition, and the development of an entrepreneurial mindset.
Term Offered: Fall

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.
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 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 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 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 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 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 and Visualization
[3 credit hours]
An introductory course in data management for environmental science seniors covering the basics of data management practices and using 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 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, 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.
Corequisites: EEES 4350
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 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 4500 Understanding Environmental Data and Scientific Methods
[3 credit hours]
An introduction to data analysis in environmental science, including the concepts of uncertainty and probability distribution, exploratory data analysis through data visualization, and data analysis as a tool in scientific research.
Prerequisites: EEES 2500 with a minimum grade of C- or CSET 1100 with a minimum grade of C- or MATH 2600 with a minimum grade of C- or MATH 2640 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 4560 The Science of Aquaria
[3 credit hours]
The Science of Aquaria explores the scientific principles behind home aquariums. Students use observational studies to investigate process and causality within these ecosystems. The course focuses on visualizing large-scale environmental processes, such as biochemical cycles, anthropogenic eutrophication, trophic interactions, and biodiversity within the context of a familiar, hands-on system.
Prerequisites: EEES 3050 with a minimum grade of C-
Term Offered: Spring

EEES 4610 Environmental Geophysics
[3 credit hours]
An introduction to basic geophysical concepts, signals, and information content. Course includes an overview of the theory, field application, and interpretation of geophysical methods. Discussion of the applications for characterizing and monitoring environmental systems, including soils, groundwater, and other ecosystem units. Case studies include the use of geophysics for soil, groundwater, archaeological, forensic, engineering, and ecological investigations. The course involves field demonstrations and hands-on exercises on field applications of geophysical techniques.
Prerequisites: MATH 1760 with a minimum grade of C- or MATH 1860 with a minimum grade of C- or PHYS 2080 with a minimum grade of C-
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 landcape-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, 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, 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.
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.
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, Summer, 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, 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.
Term Offered: Spring, 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: (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)
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: (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)
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) or (EXSC 2560 with a minimum grade of C and EXSC 2570 with a minimum grade of C)
Corequisites: EXSC 4550
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 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 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

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
OT36 Arts and Humanities

FILM 2230 Creative Approaches to Cinema
[3 credit hours]
This class is a filmmaking fundamentals course that introduces the entire film production process, covering core skills in camera basics, grip and electrical basics, and the basics of scriptwriting, pre-production planning, production (cinematography and sound), and post-production (editing). Film/Video majors must have taken or be co-enrolled in Critical Approaches to Cinema, Film 2330, 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: 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: Styles and Techniques
[3 credit hours]
A production/seminar course focusing on directing dramatic scenes for camera with emphasis on directorial style. 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

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 Cinema and Popular Culture Studies
[3 credit hours]
Covering issues concerned with cinema and popular culture history, theory, and criticism. Interrelationships will be examined between the transmission of popular culture content through cinema, television, radio, print, and/or the Internet. Particular focus of the course content 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, Fall

FILM 4310 Narrative Film Production
[3 credit hours]
A production/seminar course focused on advanced production techniques for narrative filmmaking. Emphasis on double system/sync-sound recording, lighting and grip, set-etiquette, and editing 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 with a minimum grade of C or FILM 3560 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 and AI Applications
[3 credit hours]
This course is a technical introduction to Excel and AI applications for applications in the field of finance. This course begins with a focus on building common financial models, performing scenario and sensitivity analysis, and effective communication of models and analysis in Excel. Models include project models, real estate models, personal financial models, and models for valuing public and private firms and contingent claims. Financial models rely on the analyst to collect and analyze data from various external and internal sources relevant to the context of the model being constructed. To that end, this course also introduces applications of Large Language Models for financial analysts. These applications introduce effective prompting and plan files, integration of LLMs with Excel, working with LLMs in a development environment, and using LLMs to build Python applications for collecting and analyzing and presenting data from public and private financial data warehouses.
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 responsibilites.
Prerequisites: FINA 3480 with a minimum grade of C
Term Offered: Spring, Fall

FINA 4500 Survey of Fintech Topics
[3 credit hours]
This course provides a comprehensive survey of financial technology (FinTech) innovations transforming the global financial system. Students examine the foundations and applications of blockchain technology, cryptocurrencies, artificial intelligence, and machine learning in financial services. The course develops the analytical framework necessary to evaluate emerging financial technologies, assess their strategic implications for traditional financial institutions, and understand the evolving regulatory landscape.
Prerequisites: BUAD 3040 with a minimum grade of C
Term Offered: Spring, Summer, 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 & 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 & 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 & 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 & 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 & 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 1100 Math Foundations for Engineers
[3 credit hours]
Math Foundations for Engineers is designed to assist in accelerating students' remediation in math through introducing students to math concepts using engineering and science problems. The course is intended to improve learning and utilization of math terms, notation and applications with the goal of targeting students' gaps in math knowledge. The target students are those who place into college algebra, but who feel they were placed below where they should be based on their performance in prior math courses. It aims to help these students move up one or more levels in their math placement, while familiarizing students with expectations of future engineering coursework, motivation techniques and building efficacy.
Term Offered: Fall

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

GNEN 2980 Special Topics in Engineering
[1-3 credit hours]
A special topic course is offered at the undergraduate level on a topic of broad or general interest to STEM students, typically in a new or rapidly advancing area. Credits will correspond to regular class meetings of one lecture hour per week per credit hour.
Term Offered: Spring, Summer, 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 2020 Introduction to Geospatial Science
[3 credit hours]
Introduction to the basic concepts, definitions, theories, methods, and tools of geospatial science and technology (GIS&T). Topics include geographic information systems (GIS), remote sensing (RS), Global positioning systems (GPS), geo-visualization, and spatial statistics.
Term Offered: Fall

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, Fall
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 mega-cities 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 4300 GIS Programming
[3 credit hours]
Introduction to computer programming languages that can customize and expand the capability of geospatial science and technology (GIS&T). Major topics include programming fundamentals, Python, ArcPy, Jupyter, and their applications.
Prerequisites: GEPL 2020 with a minimum grade of D- and GEPL 4110 with a minimum grade of D-
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 4400 GeoAI and Machine Learning
[3 credit hours]
Introduction to the concepts, principles, methods, and tools of artificial intelligence (AI), machine learning (ML), and deep learning (DL) in the geosciences. As an advanced GIS&T programming course, this course exhibits wide applications and promising potentials of AI, ML, and DL in solving real-world problems.
Prerequisites: GEPL 4110 with a minimum grade of D- and GEPL 4300 with a minimum grade of D-
Term Offered: Fall

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 4520 Analytical And Computer Cartography
[3 credit hours]
The theoretical and mathematical foundations of the mapping process in a digital environment. An introduction to the structure and manipulation of graphic and nongraphic geographical data to produce maps.
Prerequisites: GEPL 4110 with a minimum grade of D- and GEPL 5110 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 explorer 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 4800 Geospatial Science Research
[3 credit hours]
A seminar/capstone course to guide students in integrating Geographic Information Science and Technology (GIS&T) knowledge, exploring research questions, conducting research projects, and composing journal-standard articles.
Prerequisites: GEPL 4110 with a minimum grade of D- and GEPL 4300 with a minimum grade of D- and GEPL 4400 with a minimum grade of D-
Term Offered: Spring

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 4620 German Classicism
[3 credit hours]
Study of Classical writers of Germany: Goethe, Schiller and their contemporaries.
Term Offered: Spring, Fall

GERM 4710 German Literature Of The 19th Century
[3 credit hours]
Study of selected works by authors from B¿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 4940 Internship in German
[1-12 credit hours]
Educational work experience, using the German language. Maximum of 3 hours may be applied to the German major or minor program.
Prerequisites: GERM 3020 with a minimum grade of D-
Term Offered: Spring, Summer, 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 students with their transition to college life. Content will include discussion of effective organizational and study strategies, identifying campus resources, and developing key professional behaviors to support academic success and personal wellbeing.
Term Offered: Fall

HHS 1020 Introduction to Health Sciences II
[2 credit hours]
This course 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 help students refine their study and organizational skills and explore a variety of healthcare and health-related professions that align with a health sciences degree.
Term Offered: Spring

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 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 healthcare and health-related professions 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 culminative 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

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 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 Public Health Internship I
[3 credit hours]
This course provides a supervised introductory field experience in a public health or community health setting designed to familiarize students with the structure and functions of public health practice. Students participate in an entry-level internship under the guidance of a qualified site supervisor and a University of Toledo Internship Advisor (course instructor). The experience emphasizes exposure to real-world public health activities, professional expectations, and foundational public health competencies while helping students explore potential areas of interest within the field.
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 3200 Consumer Health
[3 credit hours]
This course helps students develop the skills needed to make informed decisions about their health in today's environment of social media. Students learn how to evaluate health information from online sources, social media, advertising, and news outlets, recognize misleading claims and scams, and understand how health products and services are marketed. The course also introduces basic concepts related to health insurance and accessing care, along with strategies for communicating with healthcare providers and understanding medical information. Emphasis is placed on health literacy, critical thinking, personal advocacy, and everyday decision-making. By the end of the course, students will be better prepared to assess health claims, protect themselves from fraud, and make thoughtful choices about their health and wellness.
Term Offered: 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.
Term Offered: Fall

HEAL 4200 Planning, Implementing, and Evaluating Public Health Programs
[3 credit hours]
This senior-level course focuses on the practical skills needed to plan, implement, and evaluate public health programs. Students learn how to assess community health needs, use population data and scientific literature to guide decision making, and apply theory and social determinants of health to program design. The course emphasizes developing realistic interventions, identifying stakeholders and resources, planning for implementation, and designing basic evaluation strategies. Through a series of connected assignments, students build toward a final grant proposal that reflects real-world public health practice.
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 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 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 Public Health Internship II
[6 credit hours]
This course provides a supervised field experience in a public health setting designed to deepen students' understanding of their chosen concentration area. Students complete a structured internship under the guidance of a qualified site supervisor and a University of Toledo Internship Advisor (course instructor). The experience emphasizes application of concentration-specific knowledge, development of professional skills, and engagement in projects or activities that align with program competencies and career goals.
Prerequisites: HEAL 2940 with a minimum grade of C
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, 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: Spring, 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 & 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, Summer, 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, Summer, 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: 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]
Social, cultural, and political history of Europe from c. 450-1000. Students will learn about the fall of the Roman Empire, the establishment of Christianity as the majority religion in Europe, the Franks, Charlemagne, pre-conquest England, Vikings, and more. Was life in the early middle ages nasty, brutish, and short or just different?
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 3230 Early Caribbean History
[3 credit hours]
This course covers the history of the early Caribbean through emancipation in the mid-nineteenth century. Topics include: The Carib and Taino Indians, European exploration and colonization, the Atlantic slave trade, and the golden age of piracy.
Term Offered: Spring, Summer, Fall

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 19h 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, Fall
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, Fall

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 & 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

Human Resource Managment (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 Fundamentals of Python in Business
[3 credit hours]
Introduction to fundamental constructs of computer programming. This course introduces data types, variables, constants, 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-
Term Offered: Spring, Summer, Fall

INFS 3160 Business Process Automation and Integration
[3 credit hours]
This course aims to give students a broad understanding of technical and business issues in automating processes. Students will gain understanding of the techniques and issues surrounding digital transformation, task automation, workflow automation, system integration, and citizen development.
Prerequisites: BUAD 2020 with a minimum grade of C
Term Offered: 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 Information Security, Data Governance, & Ethics in AI
[3 credit hours]
This course provides students with a comprehensive understanding of technical and business issues in information systems security, including systems security models, analysis of processes and technologies in systems security, and security policies leading to information assurance. The course extends to contemporary challenges in data governance and ethics in artificial intelligence, examining how organizations can secure, govern, and ethically manage data assets in AI-driven environments while maintaining compliance with evolving regulatory frameworks and ethical standards.
Term Offered: Spring, Summer, Fall

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 Discovering Business Insights with Machine Learning
[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, classification, and prediction. Students will learn analytics techniques that are useful in areas such as marketing and forensics accounting.
Prerequisites: BUAD 2070 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

INFS 4300 Machine Learning for Prediction & Classification
[3 credit hours]
This course aims to give students a broad understanding of technical and business issues in data mining and data warehousing. Students will gain understanding of the techniques and issues surrounding data warehousing. In addition, students will learn advanced data mining techniques that are useful in various business functions.
Prerequisites: BUAD 2070 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

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 Obect 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]
Biomedial 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 provede 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 conrtibuting to each course.
Term Offered: Spring, Summer, Fall

IDS 3030 Interdisciplinary Research and Methods
[3 credit hours]
Investigates and applies current research and methodological trends in interdisciplinary fields and the ways in which these practices inform other disciplines. Requires research project.
Term Offered: Spring, Fall

IDS 3050 Professional Development in Interdisciplinary Fields
[3 credit hours]
Designed for AFST, DST, LST, and WGST majors & minors. Students reflect on the academic, professional and community activist dimensions of their interdisciplinary fields. Special emphasis is placed on career and graduate school exploration, developing a strong professional skill set, exploring key concepts and ethical issues in practice, and developing a cohort of interdisciplinary peers.
Term Offered: Spring, 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 & 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 & 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 & 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 & 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 & 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 & 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 & 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 concepts of culture and cultural diversity to geographical themes and case studies.
Term Offered: Spring, Fall
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 stratification.
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.
Term Offered: Spring, Fall

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 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- or PSC 1210 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]
In this course students will learn about perspectives on and contemporary issues about disability around the world. We will explore the cultural differences, power imbalances, and politics in the global disability landscape, thinking through disability's relationship to these topics. Geopolitical area of focus may vary based instructor expertise.
*Writing Across the Curriculum
Term Offered: Spring, 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 4580 International Law
[3 credit hours]
A course focusing on the foundations of international law and the current use of international law in cases covering a wide range of issues such war, weapons, diplomacy, the environment, economics, and human rights.
Term Offered: Spring, Summer, 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.
Term Offered: Spring, Fall

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, 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 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 approch 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
[5 credit hours]
Principles of elementary number theory, base systems, foundations of arithmetic operations, fractions, decimals, integers, rational numbers, real numbers, algebraic thinking 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
[4 credit hours]
Foundations of ratios, proportional relationships, functions, measurement, geometry, statistics and probability with a focus on reasoning and real-world problem solving. Course is not applicable toward the undergraduate Mathematics major requirements.
Prerequisites: MATH 1210 with a minimum grade of C-
Term Offered: Spring, 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.
Corequisites: MATH 1320
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]
Exponential, logarithmic and trigonometric functions, limits and continuity, rates of change, differentiation, derivative applications and integration. 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]
Trigonometric identities, equations and graphs, calculus of trigonometric functions, integral applications, integration techniques, differential equations and probability. 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 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, Summer, 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
[4 credit hours]
Differential calculus of algebraic and trigonometric functions, including limits, curve sketching, motion, maxima/minima, related rates, and 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 2870 Introduction to Differential Equations and Linear Algebra for Engineers
[4 credit hours]
An introduction to principles of matrix algebra and the analysis and solution of ordinary differential equations with an emphasis on engineering applications
Prerequisites: MATH 1860 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]
Short-term insurance and reinsurance coverages; severity, frequency and aggregate models; parametric estimation; introduction to credibility; pricing and reserving for short-term insurance coverages; option pricing fundamentals.
Prerequisites: MATH 4680 (may be taken concurrently) with a minimum grade of C-
Term Offered: Fall

MATH 4770 Actuarial Mathematics II
[3 credit hours]
Long-term insurance coverages and retirement financial security programs, mortality models, present value random variables for long-term insurance coverages, premium and policy value calculation for long-term insurance coverages.
Prerequisites: MATH 4760 (may be taken concurrently) 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 3190 with a minimum grade of D-
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 Rn; 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, 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 1020 Orientation to Mechanical Engineering I
[2 credit hours]
An introduction to the mechanical engineering profession with an emphasis on design projects, professionalism, engineering ethics and career opportunities. Orientation to the university campus, study skills and time management.
Term Offered: Fall

MIME 1030 Orientation to Mechanical Engineering II
[2 credit hours]
Course assists in preparing the student for the co-op experience in industry. Social protocol and ethics in industry are reviewed. Resume writing, interview skills, and team-based project skills are developed.
Prerequisites: MIME 1020 with a minimum grade of D-
Term Offered: Spring

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 1110 Introduction to CAD for Mechanical Engineers
[0-4 credit hours]
Techniques for visualization and representation of machine components using 2D drawing and projection, section views, orthographic projection, dimensioning and tolerancing,
Term Offered: Fall

MIME 1120 Intermediate CAD for Mechanical Engineers
[0-4 credit hours]
Techniques for visualization and representation of machine components using solid modeling and projection, section views, orthographic projection, dimensioning and tolerancing, Introduction to higher level 3D CAD systems.
Prerequisites: MIME 1110 with a minimum grade of D- or CIVE 3420 with a minimum grade of D-
Term Offered: Spring

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 3100 Mechanical Design 1 with Lab
[0-8 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. This course contains a laboratory component.
Prerequisites: CIVE 1160 with a minimum grade of D-
Term Offered: Spring, 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 3340 Mechanical Vibrations with Laboratory
[0-8 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. Contains a laboratory component.
Prerequisites: MIME 2300 with a minimum grade of D- and MIME 2900 with a minimum grade of D- or MATH 2860 with a minimum grade of D-
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 3600 Introduction to Thermodynamics with Lab
[0-8 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. Applications to internal combustion engines, gas turbines, Rankin cycle, and a vapor/compression refrigeration cycle. This course will contain a laboratory component.
Prerequisites: PHYS 2140 with a minimum grade of D- and (MATH 2860 (may be taken concurrently) with a minimum grade of D- or MIME 2900 (may be taken concurrently) with a minimum grade of D-)
Term Offered: Spring, Fall

MIME 3610 Fluid Mechanics with Lab
[0-8 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, and aerodynamics. This course will have a laboratory component.
Prerequisites: MIME 3600 with a minimum grade of D- and MIME 2700 (may be taken concurrently) with a minimum grade of D-
Term Offered: Spring, Summer, Fall

MIME 3620 Introduction to Heat Transfer with Lab
[0-8 credit hours]
A 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. This course has a laboratory component.
Prerequisites: MIME 3610 with a minimum grade of D-
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, Fall

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.
Term Offered: Spring, Fall

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 psychometric 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: Spring, 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 4790 The Professional Engineer (PE)
[3 credit hours]
The course is designed to explore and prepare for registration as a Professional Engineer. This course will introduce students to important topics in the Fundamentals of Engineering (FE) exam that might not covered in by a designated in the BSME curriculum such as: the NCEES Model Law (ethics), financial calculations (engineering economics), and probability and statistics. Students will be expected to take the NCEES FE exam at their own expense. Much of this course will involve self-study.
Term Offered: Spring, 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

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

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
[3 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
[4 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: Spring, Summer, Fall

MEDT 4030 Body Fluids
[2 credit hours]
Normal and pathological physiologic function of renal, synovial, seminal, cerebrospinal, serous and amniotic fluids.
Term Offered: Spring, Summer, Fall

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: Spring, Summer, 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 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. This course will provide a casual look into research design, practice and clinical trials from a Medical Laboratory Science perspective.
Term Offered: Spring, Summer, Fall

MEDT 4950 Laboratory Management
[1 credit hour]
An overview of information relating to management skills within the clinical laboratory, including organizational structure, job descriptions, personnel and financial management, standard operating procedures for procedure manuals, and compliance with governmental regulation
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 asay 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, Summer

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 hemostatis, quality control and instrumentation and manual methods.
Prerequisites: MEDT 4025 with a minimum grade of C
Term Offered: Spring, Summer

MEDT 4954 Clinical Externship: Immunohematology
[3 credit hours]
Clinical laboratory experience in an affiliated Clincial 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 Biomedicinal Chemistry Laboratory
[1-10 credit hours]
Research experience in biomedicinal 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 Biomedicinal Chemistry
[1-3 credit hours]
Selected study of topics in biomedicinal 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 Leadershp (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 & 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 & 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 & 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 & 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 & 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 rechnology 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 & 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 resonation 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: Spring, 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 permisison 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 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 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 3570 Guitar Pedagogy
[3 credit hours]
Comprehensive study of techniques and materials for private and group guitar instruction.

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
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 4460 Guitar History And Literature
[3 credit hours]
The history and literature of the guitar, including a study of the Renaissance and Baroque lute, vihuela and Baroque guitar, 19th and 20th century instruments.

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 repoertoire 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 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 3300 Elementary And Secondary School Instrument Methods For Music Majors
[3-4 credit hours]
Choral/Gen cluster 3 cr.; Inst cluster 4 cr. A study of the techniques and teaching procedures used in the presentation of the instrumental music program in elementary and secondary schools. Field experience required. Includes participation in MUS 1000:002.
Prerequisites: Upper Division with a score of 1
Term Offered: Spring

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.
Prerequisites: Upper Division with a score of 1
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.
Prerequisites: Upper Division with a score of 1
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 Foundations of Academic Success for Science and Math Majors
[0-1 credit hours]
Course will introduce new students to the University and college, help them develop skills to successfully transition from high school to college, provide them with information about their discipline and degree requirements, connect them to academic and campus resources, create a sense of belonging, and help students successfully navigate the first year of their academic journey.
Term Offered: Fall

NSM 1500 Building a Career in Science and Math
[0-1 credit hours]
The second of a two-part introductory course sequence to help students successfully navigate the academic journey to prepare for a rich and rewarding career in a STEM field. This course focuses on career resources and professional development: including networking, internship and research opportunities, effective resume writing, professional communication, and preparing an academic plan of study consistent with career goals.
Term Offered: Spring

NSM 2000 Professional Career Preparation in Math and Science
[1 credit hour]
Career self-assessment and planning, identifying and exploring career options aligned with math and science degrees, development of tools and strategies for successfully obtaining jobs and internships in math, science and related fields.
Term Offered: Spring

Neuroscience (NSCI)

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 2000 The Neuropsychiatric Patient Part 2: Discourse, Essays, and the Patient Experience
[2 credit hours]
This is a continuation of the NSCI1000 course "The Neuropsychiatric Patient" (prerequisite) that is an introduction to the diagnosis, disease and pathophysiology of the nervous system. This course will take a deeper dive into issues raised in the fall course, with a focus on directed readings, revising and publishing essays from NSCI1000, and sessions with patients with neuropsychiatric disorders.
Prerequisites: NSCI 1000 with a minimum grade of C-
Term Offered: Spring

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: Spring, 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 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 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 4510
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 4510
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 4510 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 4510 (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 4510 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 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 4510
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 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, 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 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 3020 with a minimum grade of C and NURS 3150 with a minimum grade of C and NURS 3030 with a minimum grade of C and NURS 3080 with a minimum grade of C
Corequisites: NURS 3220, NURS 3280, NURS 3540
Term Offered: Spring, Summer, Fall

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 4070, 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 4510 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 4070, 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 4070, 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) Seminar
[0 credit hours]
This class helps students learn important life skills for being adults. Students will learn about themselves, how to handle their feelings, how to get along with others, and how to solve problems. These skills help students live on their own and be successful at work and in their community. Each week, students will learn new things and practice using these skills in real situations.
Term Offered: Spring, Summer, Fall

OCCT 2550 Purposeful Living: The 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, and PMBOK process groups and knowledge areas.
Prerequisites: BUAD 3020 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

OSCM 4250 Advanced Business Analytics & AI Applications
[3 credit hours]
This course provides a broad understanding of tools, techniques and business issues in using business analytics. It extends data visualization and predictive analysis tools gained in statistics courses. It also introduces decision analysis and develops comprehension of evaluative tools such as spreadsheet modeling. Skills in problem identification and analysis will be developed through the use of cases.
Prerequisites: BUAD 2070 with a minimum grade of D-
Term Offered: Spring, Summer, Fall

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, Fall

OSCM 4760 Sim Mod/Anlys Spply Chn Systm
[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 ine 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-

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: PHPR 3460
Term Offered: Spring

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 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

Pharmacology (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 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

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: 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 3070 Pharmaceutics 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 3110 Pharmaceutics 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 Pharmaceutics 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 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 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 with 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 3700 Regulatory and Formulation Science in Skincare
[3 credit hours]
Overview of three major topics: United States cosmetic regulations, emulsion science and formulation basics, and skin care science.
Prerequisites: PHPR 3040 with a minimum grade of D-
Term Offered: Spring, Summer, 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 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 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 Phrmaceutical 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 Adminstration
[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 1. 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 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 & 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 1750 American Philosophy and Civic Thought
[3 credit hours]
Philosophical study of texts, ideas, and arguments that have shaped American experience. Special attention is given to the analysis and evaluation of arguments, American Pragmatism as a philosophical tradition, and the American tradition of civic thought.
Term Offered: Spring, Fall
Core Arts & 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: Spring, 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 including photosynthesis, photovoltaic, solar thermal, and concentrating solar electric; emphasis on understanding Earth's solar resource, and energy conversion through photovoltaic solar cells and modules.
Prerequisites: CHEM 1230 with a minimum grade of C or PHYS 2070 with a minimum grade of C or PHYS 2130 with a minimum grade of C
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 4660 Foundations of Glass Science
[3 credit hours]
This course introduces the scientific foundations of glass. Topics include glass formation, structure, phase transformations, vibrational and thermal properties, atomic and ionic transport, viscosity and glass transition, electronic and optical properties, surface and chemical durability, and mechanical properties. Emphasis is placed on linking atomic-scale structure and bonding to macroscopic behavior across different families of glasses. The course provides a conceptual foundation for students pursuing glass science, materials science, and related research or industries.
Prerequisites: PHYS 2140 with a minimum grade of C and CHEM 1230 with a minimum grade of C
Term Offered: Fall

PHYS 4670 Glass Technologies
[3 credit hours]
A foundational course on glass technologies with emphasis on industrial practices. Topics include both conventional and non-conventional glass making, forming, and processing technologies across a broad range of glass families and product forms. Emphasis is also placed on how glass technologies are developed to align with composition and to engineer structure, thereby achieving tailored properties and functionalities in glass products. Historical and current glass industry players, manufacturing technologies, and products that have shaped the modern world are also highlighted throughout the course.
Prerequisites: PHYS 2140 with a minimum grade of C and CHEM 1230 with a minimum grade of C
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 sd 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]
Experential 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 1210 American National Government and Civics
[3 credit hours]
An introductory survey of the institutions, processes, and politics of the government of the United States since its foundation and its relationship to state governments. Primary texts include influential documents that have shaped the U.S. government, including, but not limited to, The United States Constitution, Declaration of Independence, selected Federalist Papers, Gettysburg Address, Emancipation Proclamation, Martin Luther King Jr.'s Letter from Birmingham Jail, and the writings of Adam Smith. The course adheres to appropriate university, state, and federal guidelines on assessment, content, and transferability.
Term Offered: Spring, Summer, Fall
Core Social Sciences

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, Summer, 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 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- or PSC 1210 with a minimum grade of D-
Term Offered: Spring, Fall

PSC 3550 Human Rights and Humanitarian Law
[3 credit hours]
What are human rights? Why do states repress citizens? How do human rights norms diffuse? How do human rights defenders protect rights? What is humanitarian law? How does it different from human rights law? This class will examine both the theoretical and empirical contributions to the study of human rights and humanitarian law from the social sciences and law, as well as, human rights best (and worst) practices. Specifically, the class will examine the full extent of UN human rights mechanisms - both on the norm creation side and the protection side of things.
Term Offered: Spring, Fall

PSC 3560 Legal Frameworks of International Governance
[3 credit hours]
The purpose of this course is to introduce major international institutions, particularly intergovernmental institutions to students by developing a knowledge of the institutional architecture of relevant institutions, the theoretical concepts that explain how institutions perform, and by analyzing case studies that illustrate best and worst practices by numerous international institutions. It is my hope that this course will help students gain a better understanding of the interconnectedness of the world and to help students develop the research and critical thinking skills necessary for advanced courses at both the undergraduate and graduate level.
Term Offered: Spring, Fall

PSC 3570 European Law and Governance
[3 credit hours]
This course will give students an overview of different European states, governments, politics, and law. In addition, the course will examine the European Union, its structures, and key issues facing both the European Union and Europe. Issues include European integration, the rise of authoritarian political parties, the recent refugee and migration crisis, European foreign policy, and the creation and expansion of European law and how it impacts the world.
Term Offered: Spring, Fall

PSC 3580 Terrorism and National Security
[3 credit hours]
Terrorism is one of the biggest issues of our time. In this class, students will gain an historical, empirical, and theoretical understanding of terrorism and potential responses to terrorism. What are the causes of terrorism? What factors lead to an individual joining a militant group? Why do groups take up arms against the status quo? What do terrorists and militant groups hope to achieve? Which tactics are most successful for terrorists? Which are the least successful tactics? How can states counter terrorism? What are the best and worst practices in counterterrorism? Why do states use political violence and how is it related to terrorism? What does the future hold for terrorism and counterterrorism? This a a small sample of the questions asked in this course.
Term Offered: Spring, Summer

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 1210 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 4580 International Law
[3 credit hours]
A course focusing on the foundations of international law and the current use of international law in cases covering a wide range of issues such war, weapons, diplomacy, the environment, economics, and human rights.
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 envriomeent.
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 2110 Happy Minds: Science and Practice of Well-Being
[3 credit hours]
This course introduces the psychology of happiness and well-being while guiding students in applying evidence-based practices to their own lives. Through readings, discussions, and weekly "happiness labs," students will develop a personalized toolkit of strategies for resilience, selfcare, and flourishing. By the end of the course, students will have practical skills that support success and fulfillment during college and beyond.
Term Offered: Spring, Summer, 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 2500 Developmental Psychology
[3 credit hours]
Emphasizes change and continuity in development, with a focus on research and theory during infancy, childhood, and adolescence.
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
Multicultural US Diversity

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 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. :030Developmental 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

Radiation Oncology/Therapy (RDON)

RDON 1010 Introduction to Radiation Therapy
[3 credit hours]
The course provides an overview of the basics of radiation therapy and the practitioner's role in health care delivery. Principles, practices and policies of health care organizations will be discussed, as well as safety concerns and the professional responsibilities of the radiation therapist. The course also describes the inter-relatedness of standards of care, laws, ethical standards and professional competence. The student must receive a minimum of a B in this course to be eligible to apply to the Radiation Therapy Professional track.
Term Offered: Spring

RDON 3100 Radiation Therapy Physics I
[3 credit hours]
Radiation Physics I content establishes a basic knowledge of physics as it applies to the radiation therapy clinical setting. Covered in this course are the fundamental physical units and measurements, basic principles, atomic structure, and types of radiation. Also presented are the fundamentals of radiation generating equipment, x-ray production and x-ray interactions with matter. The student must receive a B- or better in this course to progress in the program.
Prerequisites: RDON 1010 with a minimum grade of B
Term Offered: Fall

RDON 3110 Sectional Anatomy
[3 credit hours]
The Sectional Anatomy course introduces students to medical imaging methods currently used in the field of radiation therapy. Students will identify normal anatomical structures via a variety of imaging formats. Basic anatomical relationships will be compared using topographical and cross-sectional images. The student must receive a B- or better in this course to progress in the program.
Prerequisites: RDON 1010 with a minimum grade of B
Corequisites: RDON 3150
Term Offered: Fall

RDON 3120 Patient Care Management
[3 credit hours]
This course provides radiation therapy students with the foundational concepts in the care process of patients during the course of radiation therapy treatment delivery. Both the physical and psychological needs of patients will be explored. The course will address both routine and emergency care procedures. The student must receive a minimum grade of a B- to progress in the program.
Prerequisites: RDON 1010 with a minimum grade of B
Corequisites: RDON 3150
Term Offered: Fall

RDON 3130 Principles & Practice of Radiation Therapy I
[3 credit hours]
This course provides an overview of cancer and the specialty of radiation therapy. Historic and current aspects of cancer treatment are covered, along with the roles and responsibilities of the radiation therapist. The equipment used in radiation therapy including historic, current and emerging are examined. In addition, treatment prescription, techniques and delivery are discussed. Explores the management of neoplastic disease to include respiratory, central nervous, endocrine, lymphoreticular, hematopoietic, musculoskeletal, benign conditions and HIV related neoplasms. The epidemiology, etiology, detection, diagnosis, treatment and prognosis of neoplastic disease are evaluated in relation to histology, anatomical site and patterns of spread. Examines the role of Radiation Therapy in palliative care. The radiation therapist's responsibility in the management of neoplastic disease will be examined and linked to specific professional skills within their scope. The student must receive a B- or better in this course to proceed in the professional track of the program.
Prerequisites: RDON 1010 with a minimum grade of B
Corequisites: RDON 3150
Term Offered: Fall

RDON 3140 Imaging and Processing in Radiation Oncology
[3 credit hours]
This course covers the factors that affect production and recording of radiographic images for patient simulation, treatment planning and treatment verification, with an emphasis on radiation oncology imaging equipment and related devices. The student must receive a B- or better in this course to progress in the program.
Prerequisites: RDON 1010 with a minimum grade of B
Corequisites: RDON 3150
Term Offered: Fall

RDON 3150 Radiation Therapy Practices Lab
[1 credit hour]
This course is the lab component to accompany RDON 3110 Sectional Anatomy, RDON 3120 Patient Care Management, RDON 3130 Principles & Practice of Radiation Therapy I and RDON 3140 Imaging and Processing in Radiation Oncology. The course provides students the opportunity to demonstrate radiation safety practices, leveling skills, patient transfers, taking vital signs, patient communication/education and assisting with patient personal care. Additionally, students will identify anatomy on images and evaluate images. The student must receive a B- or better in this course to progress in the program.
Prerequisites: RDON 1010 with a minimum grade of B
Corequisites: RDON 3110, RDON 3120, RDON 3130, RDON 3140
Term Offered: Fall

RDON 3200 Radiation Therapy Physics II
[3 credit hours]
The Radiation Therapy Physics II course reviews and expands basic physics concepts and theories to include content specific to radiation therapy. Detailed analysis of the structure of matter, properties of radiation, nuclear transformations, x-ray production and interactions of ionizing radiation are included. Also presented are treatment units used in external radiation therapy, quality evaluation of ionizing radiation, absorbed dose measurement, dose distribution and scatter analysis. Radiation protection is also covered in this course. The content presents the basic principles of radiation protection and safety for the radiation therapist. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies and health care organizations are included, as well as the specific responsibilities of radiation therapists. The student must complete this course with a B- or better to progress in the program.
Prerequisites: RDON 3100 with a minimum grade of B-
Term Offered: Spring

RDON 3210 Clinical Practicum I
[5 credit hours]
This course is the first in a series of four clinical practice courses. The clinical practicum courses are designed to provide sequential development of patient care and procedural information specific to radiation therapy. Through structured sequential assignments in clinical facilities, radiation therapy students are introduced to team practice, patient-centered clinical practice and professional development The student must receive a minimum of a B- in order to progress in the program.
Prerequisites: RDON 3110 with a minimum grade of B- and RDON 3120 with a minimum grade of B- and RDON 3130 with a minimum grade of B- and RDON 3140 with a minimum grade of B- and RDON 3150 with a minimum grade of B-
Term Offered: Spring

RDON 3230 Principles & Practice of Radiation Therapy II
[3 credit hours]
This course is a continuation of RDON 3130 Principles & Practice I. It provides an overview of cancer and the specialty of radiation therapy. Historic and current aspects of cancer treatment are covered, along with the roles and responsibilities of the radiation therapist. In addition, treatment prescription, techniques and delivery are discussed. Examines the management of neoplastic disease to include Genitourinary, Reproductive, Gastrointestinal, Head & Neck, Breast, and Pediatric neoplasms. The epidemiology, etiology, detection, diagnosis, treatment and prognosis of neoplastic disease are evaluated in relation to histology, anatomical site and patterns of spread. The radiation therapist's responsibility in the management of neoplastic disease will be examined and linked to specific professional skills within their scope. Must receive a B- or better in the course to progress in the Radiation Therapy program.
Prerequisites: RDON 3130 with a minimum grade of B-
Corequisites: RDON 3240
Term Offered: Spring

RDON 3240 Principles & Practices of Radiation Therapy II Lab
[1 credit hour]
This course is the lab component to accompany RDON 3230 Principles & Practice of Radiation Therapy II. The course provides students the opportunity to demonstrate radiation safety practices, leveling skills, patient transfers, patient communication/education. Students will identify anatomy on image and evaluate images. Additionally, students will develop a simulation plan. The student must receive a B- or better in this course to progress in the program.
Corequisites: RDON 3230
Term Offered: Spring

RDON 3300 Clinical Practicum II
[7 credit hours]
RDON 3300 is the second in a series of clinical practice courses. During this course the student is to continue and build upon the skills learned in Introduction to Clinical Practicum. The student is expected to have progressed from observation to a participatory role in the simulation and treatment of the patients. Additionally, the student will begin to participate in quality assurance. The clinical practicum courses are designed to provide sequential development of patient care and procedural information specific to radiation therapy. Through structured sequential assignments in clinical facilities, radiation therapy students are introduced to team practice, patient-centered clinical practice and professional development. Students must complete all RDON professional track courses with a B- or better to progress in the program.
Prerequisites: RDON 3210 with a minimum grade of B-
Term Offered: Summer

RDON 4110 Dosimetry
[3 credit hours]
The Dosimetry course content explains factors that influence clinical planning of patient treatment. This includes isodose descriptions, patient contouring, radiobiologic considerations, dosimetric calculations, compensation and clinical application of treatment beams. Optimal treatment planning is emphasized, and particle beams, stereotactic and emerging technologies are presented. The student must receive a B- or better in this course in order to progress in the program.
Prerequisites: RDON 3200 with a minimum grade of B-
Term Offered: Fall

RDON 4120 Dosimetry Lab
[1 credit hour]
This lab course should be taken in parallel to RDON 4110 – Dosimetry. In this lab we will learn the basics of treatment planning, from contouring to calculating isodose distributions. The Dosimetry Lab course content consists of hands-on practical exercises in the use of a commercial treatment planning system to design a treatment plan for a patient. Exercises will include the basic use of treatment planning systems, contouring and elements of plan design. The student must receive a B- or better in this course in order to progress in the program.
Corequisites: RDON 4110
Term Offered: Fall

RDON 4130 Clinical Practicum III
[6 credit hours]
This course is the third in a series of clinical practice courses. In Clinical Practicum II the student continues to utilize and build upon the skills learned in the previous clinical practice course. The student is to demonstrate active participation in the simulation and treatment of the Radiation Therapy patient. The student will expand their knowledge of Radiation Therapy by researching and observing emerging technologies. Additionally, the student will take an active role in Quality Assurance procedures. The clinical practicum courses are designed to provide sequential development of patient care and procedural information specific to radiation therapy. Through structured sequential assignments in clinical facilities, radiation therapy students are introduced to team practice, patient-centered clinical practice and professional development. All professional Track Radiation Therapy courses require a minimum of a B- in order to progress in the program
Prerequisites: RDON 3300 with a minimum grade of B-
Term Offered: Fall

RDON 4160 Radiation Biology for Radiation Therapy
[3 credit hours]
A series of introductory lectures on radiation biology with emphasis on the effects of radiation on cells and cellular components, tissues, and organisms. Dose-response relationships, dose-effect modifiers, and considerations applicable to radiation therapy treatments are among covered topics.
Prerequisites: RDON 3230 with a minimum grade of B-
Term Offered: Fall

RDON 4200 Quality Assurance & Operational Issues
[3 credit hours]
Quality management, quality assurance, safety and operations content describe the development of a culture of safety through quality control and assurance checks. This process includes the clinical aspects of patient care, medical records, treatment delivery, localization equipment and treatment planning equipment. The role of the various radiation therapy team members in quality management will be discussed as well as the legal and regulatory implications for maintaining optimal patient care. Accreditation agencies and the radiation therapist's role in the accreditation process will also be covered. The student must receive a B- or better in this course in order to progress in the program.
Prerequisites: RDON 4110 with a minimum grade of B-
Term Offered: Spring

RDON 4210 Senior Seminar in Radiation Therapy
[3 credit hours]
This is the didactic capstone course for the program. This purpose of this course is to provide students the opportunity to express their knowledge of the principles of radiation therapy. The student will review radiation therapy cases and present the information in research papers and presentations. The second focus of the course is to prepare the student to demonstrate their cumulative knowledge of the program material. The student must receive a minimum grade of a B- on the Program Final and pass the course with a minimum grade of B- or better to meet graduation requirements.
Prerequisites: RDON 4110 with a minimum grade of B-
Term Offered: Spring

RDON 4220 Clinical Practicum IV
[6 credit hours]
This course is the final in a series of clinical practice courses. In Clinical Practicum III the student is expected to continue utilizing and expanding upon the skills attained in the previous three clinical practicum courses. By the end of Clinical Practicum III, the student is to demonstrate competency of the skills required of an entry level Radiation Therapist. The clinical practicum courses are designed to provide sequential development of patient care and procedural information specific to radiation therapy. Through structured sequential assignments in clinical facilities, radiation therapy students are introduced to team practice, patient-centered clinical practice and professional development. The student must receive a minimum grade of a B- on the Clinical Capstone Assessment. Additionally, the student must pass the course with a minimum grade of a B-
Prerequisites: RDON 4130 with a minimum grade of B-
Term Offered: Spring

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 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 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 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 Recreational Therapy
[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: 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

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 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 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 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.
Term Offered: Summer

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.
Term Offered: Summer

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, Fall
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

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 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
[6 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
[9 credit hours]
Didactic, laboratory, and introductory chinical 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 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
[9 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
[1 credit hour]
Theory and practice of selected cardiopulmonary diagnostic procedures including measures of pulmonary volumes, flows, gas distribution, and gas diffusion. Capnography, exercise tasting, 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

RCBS 3300 Advanced Cardiac Life Support
[2 credit hours]
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

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
[3 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: 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
[4 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
[2 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

RCBS 4700 Research Analysis In Respiratory Care
[2 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: Fall

RCBS 4800 Issues In Professional Practice
[2 credit hours]
A capstone course designed to prepare the senior student for professional practice. Students will explore credentialing, licensure, and current trends shaping the field of respiratory care. Emphasis is placed on emerging issues in professional practice and patient care.
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

RCBS 4810 Preparation For Professional Practice
[2 credit hours]
This course is designed to prepare students for the National Board for Respiratory Care (NBRC) credentialing examinations. Graduates of the respiratory care program will be required to successfully complete the NBRC's examinations in order to practice as a Respiratory Therapist.
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, Summer, Fall

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 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.
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
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 or PSC 1210 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 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.
Term Offered: Spring, Fall
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 ecotoursim in the Africana world of Africa, the Caribbean, and Latin America.
Term Offered: Spring, Fall

SOC 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 protfolio for graduate work or career.
Prerequisites: ANTH 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.
Term Offered: Spring, Fall

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 4700 Eugenics Past and Present
[3 credit hours]
This course provides a historical overview of the ideologies, implementation, and global spread of eugenics, primarily focusing on the United States but also including non-U.S. perspectives. We conclude by raising contemporary questions about eugenics, relating the past to the present.
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: Spring, 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 4850 Public and Applied Sociology
[3 credit hours]
This course introduces students to how sociological research can be made accessible to communities, organizations, and broad audiences. Students learn how they can use sociological skills and insights to improve social conditions and contribute to the betterment of society.
Term Offered: Spring, Summer, Fall

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 4930 Disability and Social Services: Housing, Health, and Habilitation
[3 credit hours]
In this course, we use a disability studies approach to explore the social, cultural, and political dimensions of disability social services. Using an array of social scientific research methods and theory, we interrogate issues of stigma, authority and knowledge across an array of fields from direct care to social work to behavioral health services and more.
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 & 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 & 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 & 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 & 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 & 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 & 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 3200 Introduction to Hispanic Literature
[3 credit hours]
In this course, students will read some of the most important texts in Hispanic literature. They will study the lives and works of some of the most important writers from Latin America and Spain and will take a critical approach (critical theory) to analyzing the different literary genres (fiction, non-fiction, poetry, drama) and their characteristics in major Hispanic texts. Taught in Spanish.
Term Offered: Spring, 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 4200 Spanish in the US
[3 credit hours]
A thorough study of the phonology, morphology, syntax and semantics of the different varieties of Spanish in the US, with special attention to the Mexican American, Puerto Rican, Dominican, and Cuban dialects. Issues such as bilingualism, contact with English, and ethno-linguistics are addressed within a sociolinguistics approach. Students will have the opportunity to interact with native speakers of these dialects through a service-learning project. All lectures, assignments, and exams are conducted in Spanish.
Term Offered: Spring

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]
This is the first course that introduces the fundamental elements of American Sign Language (ASL) within a cultural context. Emphasis is placed on the development of beginning level ASL communication skills - receptive (listening) and expressive (signing) with vocabulary and grammar. Students will make comparisons and connections using their own culture as they are introduced and exposed to American Deaf culture and history through reading, writing, and short signed conversations. Course instruction and class activities will be conducted in ASL. Upon completion, students will be able to comprehend and respond with grammatical accuracy in expressive American Sign Language and demonstrate cultural awareness.
Term Offered: Summer, Fall

SPED 3680 American Sign Language II
[3 credit hours]
This is a continuation of the introduction of the fundamental elements of American Sign Language (ASL) within a cultural context. Emphasis is placed on the development of beginning level ASL communication skills receptive and expressive with vocabulary and grammar. Students will continue to make comparisons and connections using their own culture as they are Introduced and exposed to American Deaf culture and history through reading, writing, and short signed conversations. Course instruction and class activities will be conducted in ASL. Upon completion, students will be able to comprehend and respond with grammatical accuracy in expressive American Sign Language and demonstrate cultural awareness.
Prerequisites: SPED 3670 with a minimum grade of C
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. Students will gain knowledge and skills in applying additional vocabulary words. Students will advance in the complexity of sentence structure and grammatical structures including classifiers, specifiers, verb modulations and aspects, spatial referencing, pluralization and the importance of facial expressions. Course instruction and class activities will be conducted in ASL.
Prerequisites: SPED 3680 with a minimum grade of C
Term Offered: Summer, Fall

SPED 3700 American Sign Language IV
[4 credit hours]
This course is designed to continue the development of proficiency in using the language and understanding the culture of the Deaf. Student will continue to gain knowledge and skill in applying additional vocabulary words. Students will advance in the complexity of sentence structure and grammatical structures including classifiers, specifiers, verb modulations and aspects, spatial referencing, pluralization, and the importance of facial expressions. Course instruction and class activities will be conducted in ASL.
Prerequisites: 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
Term Offered: Spring, Fall

SPED 4100 Practicum I - Moderate Needs
[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: Upper Division with a score of 1
Corequisites: SPED 4110
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 4200 Practicum II - Mild Needs
[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.
Prerequisites: Upper Division with a score of 1 and SPED 4100 with a minimum grade of D-
Corequisites: SPED 4370
Term Offered: Spring, Fall

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: Spring, 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 4300 Practicum II - Intensive Needs
[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.
Prerequisites: Upper Division with a score of 1 and SPED 4100 with a minimum grade of D-
Corequisites: SPED 4120
Term Offered: Spring, 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 4380 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 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 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

SLP 3020 Anatomy And Physiology Of Communication Mechanisms
[1-4 credit hours]
The study of the anatomy and physiology of the mechanisms used for communication including oral-pharynageal-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 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: 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, Fall

SLP 4900 Seminar In Speech-Language Pathology
[2 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 speech-language pathology will be the focus.
Prerequisites: SLP 3800 (may be taken concurrently) with a minimum grade of B-
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

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 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 1080 Theatre Technology I
[3 credit hours]
An introduction to theory and practice in stage lighting, sound, scenic design and construction using the tools and techniques of theatre including properties and scenic painting. Students will gain knowledge through lectures, and readings with practical laboratory experience as well as use these tools, equipment and techniques in production crews on department productions.
Term Offered: Fall

THR 1090 Theatre Technology II
[3 credit hours]
The Continued exploration into theory and practice in stage lighting, sound, scenic design and construction using the tools and techniques of theatre including properties and scenic painting. Students will gain and develop the knowledge through lectures, and readings with practical laboratory experience as well as use these tools, equipment and techniques in production crews on department productions.
Prerequisites: THR 1080 with a minimum grade of D-
Term Offered: Spring

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, Fall

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. In this course, students use the knowledge of theatre history that they attain to develop innovative approaches to all areas of theatrical production in thoroughly-researched and properly-cited papers.
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, Fall

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 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, Summer, 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 iin the marketplace, public policy decisions and concerns, pricing of transportation services, and transportation's relationship to other functions in the budsiness world.
Term Offered: Spring, Summer

Undergraduate Research (UGR)

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 & 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.

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. For both men and women students.
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 3070 Nonbinary: Gender Beyond the Binary
[3 credit hours]
This course examines historical and contemporary understandings of nonbinary gender identities and expressions. It explores how concepts of nonbinary gender have developed across social, cultural, and academic contexts and considers how these ideas intersect with factors such as sexual orientation, biological sex, race, class, and ability.
Term Offered: Spring

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, Fall
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 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 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

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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