

DEPARTMENT OF PHARMACY PRACTICE

The Department of Pharmacy Practice includes the divisions of Pharmacy Practice, Pharmaceutics and Industrial Pharmacy, Cosmetic Science, and Health Outcomes and Socioeconomic Sciences.

About the Department

The department has tenure/tenure-track faculty members, clinical-track faculty members, three staff, and pharmacy residents who participate in undergraduate and graduate education, post-graduate training, basic and clinical research, and the practice of pharmacy. In addition, over 300 community-based faculty members assist the department in the teaching mission by providing introductory and advanced pharmacy practice experiences and scientific internships.

Nearly all faculty members in the department are pharmacists. The faculty represents a diverse group of interests and activities that lead to the accomplishment of mission of the college and university in each of the division disciplines.

Faculty members practice at the University of Toledo Medical Center (<http://utmc.utoledo.edu/>) and Clinics, the Center for Health Services, Zepf Behavioral Health, and Kroger Pharmacy, among other practice sites.

Cosmetic Science and Formulation Design

Cosmetic Science is a multidisciplinary applied science. Cosmetic science majors study the art, science and business of cosmetics. Students learn to develop, formulate and produce cosmetics and personal care products. They also study regulations and how to assess products' safety, performance and quality.

Health Outcomes and Socioeconomic Sciences

The division of Health Outcomes and Socioeconomic Sciences (<https://www.utoledo.edu/pharmacy/depts/deptpharmpractice/hoss/>) includes faculty members with expertise in social and behavior health, pharmacoconomics, and healthcare outcomes. The division provides the MS degree program in pharmacy administration and health outcomes.

Pharmaceutics and Industrial Pharmacy

The division of Pharmaceutics and Industrial Pharmacy prepares students to assume pharmaceutical manufacturing positions performing a variety of specialized tasks including pre-formulation evaluation, dosage form design, stability testing, pilot plant scale-up and production.

Contact Us

Dr. Jerry Nesamony, Professor
Director of the BSPS Pharmaceutics Program
Director of the MSPS Industrial Pharmacy Program
jerry.nesamony@utoledo.edu

Gabriella Baki, Associate Professor

Director of the BSPS Cosmetic Science and Formulation Design Program

gabriella.baki@utoledo.edu

Dr Varun Vaidya, Program Director for the Health Outcomes and Socioeconomic Sciences
The University of Toledo College of Pharmacy and Pharmaceutical Sciences
varun.vaidya@utoledo.edu

Department of Pharmacy Practice
3000 Arlington Ave., MS 1013
Toledo, OH 43614
419.383.1922

Degrees Offered

- DPH in Pharmacy (<https://catalog.utoledo.edu/graduate/pharmacy-pharmaceutical-sciences/departments-programs/pharmacy-practice/dph-pharmacy/>)
- Master of Science in Pharmaceutical Sciences (<https://catalog.utoledo.edu/graduate/pharmacy-pharmaceutical-sciences/departments-programs/pharmacology/msps-pharmacology-toxicology/#text>)
- Master of Science in Cosmetic Science and Formulation Design
- MSPS in Health Outcomes and Socioeconomic Sciences (<https://catalog.utoledo.edu/graduate/pharmacy-pharmaceutical-sciences/departments-programs/pharmacy-practice/msps-health-outcomes-socioeconomic-sciences/>)
- MSPS in Industrial Pharmacy (<https://catalog.utoledo.edu/graduate/pharmacy-pharmaceutical-sciences/departments-programs/pharmacy-practice/msps-industrial-pharmacy/>)

PHM 5000 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 5310 with a minimum grade of D- and PHCL 5700 with a minimum grade of D-

Corequisites: PPHR 5460

Term Offered: Spring

PHM 6000 Integrated Pharmaceutical and Clinical Sciences 4

[7 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 fluids, electrolytes and kidney disease, cardiology and gastrointestinal disorders.

Term Offered: Fall

PHM 6010 Cardiology II

[3 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacy Practice to study the etiology, pathophysiology, clinical presentation, diagnosis, and treatment of cardiovascular diseases.

Corequisites: PHPR 6460**PHM 6030 Gastrointestinal**

[2 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacy Practice to study the etiology, pathophysiology, clinical presentation, diagnosis, and treatment of gastrointestinal disorders.

Corequisites: PHPR 6460**PHM 6100 Oncology**

[2 credit hours]

An integrated course that includes Pharmacology, Medicinal and Physiological Chemistry, and Pharmacy Practice, to study of etiology, pathophysiology, clinical presentation, diagnosis, and treatment of cancer.

Corequisites: PHPR 6470**PHM 6200 Integrated Pharmaceutical and Clinical Sciences 5**

[5 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 oncology and special populations related disorders.

Corequisites: PHPR 6470**Term Offered:** Spring**PHM 6400 Physical and Mental Effects of Psychoactive Substances**

[2 credit hours]

Pharmacology, pathophysiology, social impact of substance use, mis-use, and abuse and treatments available (pharmacological and non-pharmacological). Legal issues surrounding substance use, mis-use, and abuse will also be discussed.

Term Offered: Summer, Fall**PHM 6500 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 5310 with a minimum grade of D- and PHCL 5700 with a minimum grade of D- and PHCL 6160 with a minimum grade of D- and PHM 5000 with a minimum grade of D-

Corequisites: PHPR 6350**Term Offered:** Fall**PHM 6600 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 5310 with a minimum grade of D- and PHCL 5700 with a minimum grade of D- and PHM 5000 with a minimum grade of D-

Corequisites: PHPR 6360**PHPR 5000 Residency and Postgraduate Training Preparation**

[1 credit hour]

Instruction on the various aspects of obtaining a position within a pharmacy residency training program or other postgraduate training program.

Term Offered: Spring, Fall**PHPR 5010 Advanced Evidence Based Medicine**

[2 credit hours]

This course expands upon the principles and practice of evidence based medicine (EBM) in guiding clinical decision making in pharmacy practice. This course emphasizes advanced concepts in drug literature evaluation and critique of landmark clinical trials.

Term Offered: Fall**PHPR 5020 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 5050 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 5250 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 5450 with a minimum grade of D- or PHCL 5700 with a minimum grade of D-

Term Offered: Spring**PHPR 5260 Pharmacy and Healthcare Administration**

[2 credit hours]

Description and analysis of the organization, financing and delivery of healthcare in the U.S.

Term Offered: Spring, Fall

PHPR 5300 DESIGN AND APPLICATIONS OF CANCER CHEMOTHERAPY

[1 credit hour]

In depth discussion of the principles of drug design and development within the framework of the pharmacotherapeutic management of cancer and cancer prevention.

Corequisites: MBC 5300**Term Offered:** Fall**PHPR 5310 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 5320 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 5450 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 5460 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 5520 Pharmaceutical Marketing and Management**

[3 credit hours]

Introduction to administrative sciences (marketing/management, etc.) in the provision of pharmaceutical care. Topics include multicultural communication, operation of various pharmacy practice settings, barriers to health care access, facilitation of patient access to pharmaceutical care.

Term Offered: Spring**PHPR 5590 Readings in Access and Cultural Competence**

[2 credit hours]

Examination of the literature related to access and cultural competence in the US health care system. Various types of readings will be used to analyze the relationships that exist between access, cultural competence and positive healthcare outcomes.

Prerequisites: PHPR 4520 (may be taken concurrently) with a minimum grade of C**Term Offered:** Spring, Summer**PHPR 5610 Pharmacoeconomics and Outcomes Research I**

[2 credit hours]

This course emphasizes advanced concepts, methods, and practical procedures for pharmacoeconomic analysis and outcomes research. The student will learn through readings and experience assessment of patient health status, quality of life, satisfaction and cost-effectiveness for pharmacoeconomic and health outcomes research and interpretation of economic and outcomes data.

Term Offered: Spring**PHPR 5620 Pharmacoeconomics and Outcomes Research II**

[3 credit hours]

This course emphasizes advanced concepts, methods and practical procedures for pharmacoeconomic analysis and outcomes research. The student will learn through readings and experience assessment of patient health status, quality of life, cost-effectiveness for pharmacoeconomic and health outcomes research and interpretation of economic and outcomes data.

Prerequisites: PHPR 5610 with a minimum grade of C**Term Offered:** Fall**PHPR 5680 Parenteral Manufacturing**

[2 credit hours]

The theory and technology of parenteral and ophthalmic formulation design, production, sterilization, packaging and stability.

Prerequisites: (PHPR 3010 with a minimum grade of D- and PHPR 3070 with a minimum grade of D-)**Term Offered:** Fall**PHPR 5700 Equilibrium Phenomenon**

[2 credit hours]

A theoretical and practical examination of the principles of chemical equilibrium and the techniques used in their calculation. Physical and chemical concepts focus on pharmaceutical systems as well as selected areas of chemistry.

Term Offered: Spring**PHPR 5710 Selected Topics In Pharmaceutical Technology**

[2-3 credit hours]

Discussion, evaluation, experimentation and production of selected dosage forms. A forum for the discussion of new dosage form technology and advances.

Prerequisites: (PHPR 3010 with a minimum grade of D- and PHPR 3070 with a minimum grade of D-)**Term Offered:** Spring, Summer, Fall**PHPR 5720 Pharmaceutical Rate Processes**

[3 credit hours]

A theoretical and practical application of kinetic principles applied to pharmaceutical and cosmetic systems in liquid and solid state. A mathematical treatment and development of the equations which support each reaction mechanism.

Term Offered: Spring, Fall

PHPR 5770 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 5800 Cosmetic Ingredients and Product Forms**

[3 credit hours]

In-depth review of cosmetic ingredients, selection and formulation basics, and detailed discussion of product forms in the cosmetic industry.

Term Offered: Spring, Summer, Fall**PHPR 5810 FINANCE AND PERSONAL PLANNING FOR PHARMACISTS**

[2 credit hours]

Practical topics on financial, professional, and personal situation to better prepare students to make knowledgeable decisions that affect future security and success. (Prerequisites: Third Professional Year PharmD or permission of instructor.)

Term Offered: Spring, Summer**PHPR 5820 Cosmetic Trends and Claims**

[3 credit hours]

A detailed discussion of trends, certifications, and claims within the cosmetic industry for ingredients, finished products, and facilities.

Prerequisites: PHPR 5800 with a minimum grade of C**Term Offered:** Summer**PHPR 5830 Cosmetic Regulations, Ethics, and Practices**

[3 credit hours]

In-depth review of laws and regulations governing the cosmetic industry, focusing on the United States. Legal and ethical considerations associated with ingredient selection and product formulation.

Prerequisites: PHPR 5800 with a minimum grade of C**Term Offered:** Spring**PHPR 5840 Formulating Skin and Sun Care Products**

[3 credit hours]

Detailed discussion of the anatomy and physiology of the skin and its appendages. In-depth review of cosmetics and personal care products applied to the skin for cleansing, protection, and treatment. Main discussion points include product functions, ingredient selection, product design and formulation, and product testing.

Prerequisites: PHPR 5800 with a minimum grade of C**Term Offered:** Fall**PHPR 5850 Formulating Makeup, Hair Care, and Oral Care Products**

[3 credit hours]

Detailed discussion of the anatomy and physiology of hair and the oral cavity. In-depth review of makeup products, hair care products, and oral care products. Main discussion points include product functions, ingredient selection, product design and formulation, and product testing.

Prerequisites: PHPR 5800 with a minimum grade of C**Term Offered:** Fall**PHPR 5870 Compounding Boot Camp**

[2 credit hours]

This course is a companion to the Professional Compounding Center of America Boot Camp held at the college every year. Students will complete the boot camp lab experience and work through cases and webinars and other problem solving exercises to master techniques for creating new dosage forms.

Prerequisites: PHPR 3080 with a minimum grade of D-**Term Offered:** Summer, Fall**PHPR 5910 Drug-Induced Diseases**

[1 credit hour]

An elective course that examines the epidemiology, public impact, contributing factors and causes for various Drug-Induced Diseases. This course will also examine Pharmacology, Medicinal and Physiological Chemistry, Pharmacokinetics and Pharmacotherapy, to study the etiology, pathophysiology, clinical presentation, diagnosis, and treatment Drug-Induced Diseases.

Term Offered: Spring**PHPR 5920 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 5930 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 5940 Managed Care Pharmacy Elective**

[1 credit hour]

The course will offer in-depth teaching and discussions on managed care pharmacy.

Term Offered: Fall**PHPR 5960 Advocacy in the Pharmacy Profession**

[1 credit hour]

The purpose of the course is to teach participants about the role and process of legislative advocacy in the pharmacy profession. Students will learn basic principles of legislative advocacy and contemporary issues in the profession of pharmacy. The course will have a hybrid delivery format with most sessions being delivered in an asynchronous, virtual manner. Students will be required to attend Advocacy Awareness Day in Columbus, date TBD. Travel details will be at the expense of the student (transportation and meals).

Term Offered: Fall**PHPR 5990 Problems In Pharmacy Practice**

[1-6 credit hours]

Tutorial or directed, individual research problems in administrative pharmacy, or other related fields.

Term Offered: Spring, Summer, Fall

PHPR 6000 Drug Information Seminar

[2 credit hours]

An advanced seminar course which applies evidence based medicine through literature searching, drug literature evaluation skills, and formal writing and presentation skills to complete a written literature summary and patient population based therapeutic recommendation, as well as a verbal presentations such as case presentations, disease state and pharmacotherapy reviews and other topic discussions.

Term Offered: Spring, Fall**PHPR 6010 Leadership and the Military Healthcare Professional**

[2 credit hours]

This two-part online course will cover various advanced leadership discussions and topics, including continuous process improvements, management, followership, difficult conversations/feedback, as well as the development of teams and individuals, and the personal leadership philosophy. Students will be able to apply these skills using real-world applications by performing a continuous process improvement (CPI) project, delivering feedback, and interacting weekly with their classmates in various discussions. Additionally, students will explore the military healthcare system and the role of the healthcare professional in a variety of topics, including readiness, emergency management, deployments, leading/managing personnel, designing programs, and responding to biological/chemical/radioactive/nuclear events (CBRNE). These topics will be discussed in a manner that all students can understand regardless of their professional program or background.

Term Offered: Spring**PHPR 6200 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.

PHPR 6220 Pharmacoeconomics and Outcomes Research

[1 credit hour]

This course allows students to gain and expand their knowledge base in areas such as application of pharmacoeconomic and effectiveness measures to the practice of health care.

PHPR 6250 Advanced Self Care

[3 credit hours]

The course will discuss issues surrounding the self-medication decision-making process. Special emphasis will be placed on how pharmacists should help patients safely and effectively treat common medical problems. The course will provide information about how pharmacists should educate and counsel patients about diagnostic tests that the public can purchase without a prescription.

Term Offered: Spring**PHPR 6260 PHCAD-3**

[1 credit hour]

The course will offer in depth teaching and discussions on human resource management, inventory control, and organizational financial management in the respective practice settings.

Prerequisites: PHPR 4520 with a minimum grade of D-**Term Offered:** Fall**PHPR 6270 Business Aspects of Pharmacy**

[2 credit hours]

This course will provide students with a foundation in the business aspects of the practice of pharmacy and their important role in the provision of pharmaceutical care.

PHPR 6280 PHCAD-4

[2 credit hours]

This course focuses on developing, implementing, and evaluating Medication Therapy Management (MTM) and Disease State Management (DSM) programs.

Prerequisites: PHPR 6260 with a minimum grade of D-**Term Offered:** Spring**PHPR 6310 Jurisprudence and Ethics**

[1 credit hour]

Discussion of federal, state and local laws affecting the profession and practice of pharmacy. Ethical principles involved in patient care will be reviewed and applied.

Term Offered: Spring**PHPR 6330 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 6340 RESEARCH DESIGN AND DRUG LITERATURE EVALUATION 2**

[2 credit hours]

Concepts of research design, statistical analysis, drug literature evaluation and evidence based medicine are expanded from PHPR 4330 to depict their practical relevance to pharmacy practice.

Prerequisites: PHPR 4330 with a minimum grade of D-**Corequisites:** PHPR 6070**Term Offered:** Fall**PHPR 6350 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 5460 with a minimum grade of D-**Corequisites:** PHPR 6200**Term Offered:** Fall**PHPR 6360 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 6350 with a minimum grade of D- and PHPR 6540 with a minimum grade of D-**Term Offered:** Spring**PHPR 6390 Commonly Prescribed Meds and Med Term II**

[1 credit hour]

This course introduces students to commonly prescribed medications and medical terminology.

Prerequisites: PHPR 5320 with a minimum grade of D-**Corequisites:** PHPR 6350**Term Offered:** Fall

PHPR 6400 Topics in Internal Medicine

[2 credit hours]

This course is designed to focus on complex and/or controversial pharmacotherapy topics and the evaluation of primary literature and guidelines to promote effective abilities in evaluating, selecting, and recommending pharmacotherapeutic regimens, and educating patients and health care professionals utilizing the principles of evidence based decision making.

Term Offered: Spring, Summer**PHPR 6410 Leadership: Principles and Practice**

[2 credit hours]

This course will facilitate student self-discovery first and foremost. Through reflection activities, and discussion students will learn about themselves, the idea of leadership, and how they relate to others. This is not a passive process. Students are expected to actively participate in the course to get the most out of it. The course is meant to help students take a critical look at their relationships with others by answering the following questions; 1) how am I a problem for others? 2) how can I be more helpful to others? 3) how can I help things go right?

Term Offered: Summer, Fall**PHPR 6460 Pharmacy Skills Development - 5**

[2 credit hours]

This advanced course will enhance confidence in application of knowledge and skills to prepare students for competent participation in the Pharmacists Patient Care Process and transitions of care in Advanced Pharmacy Practice Experiences.

PHPR 6470 Pharmacy Skills Development - 6

[2 credit hours]

This course is designed to further develop fundamental skills in the Pharmacists Patient Care Process and to enhance confidence in clinical skills necessary for roles in transitions of care.

Term Offered: Spring**PHPR 6480 Exploring Novel Careers in Pharmacy**

[1 credit hour]

This course will introduce students to novel careers in the pharmacy profession. This course will also increase student awareness of careers that can be pursued with a PharmD degree. Students will hear from guest speakers in current novel career positions and have the opportunity to interact with the speakers during a Q&A session.

Term Offered: Fall**PHPR 6520 Analysis Of The Pharmaceutical Environment**

[2 credit hours]

A theoretical and practical examination of the pharmaceutical environment and drug distribution system using administrative pharmacy sciences as a tool for analysis.

Prerequisites: PHPR 4520 with a minimum grade of D-**Term Offered:** Spring, Fall**PHPR 6530 Research Methods In Pharmacy Practice**

[2 credit hours]

An introduction to research methods and principles used in designing, planning, implementing, analyzing and interpreting research projects in pharmacy practice.

Term Offered: Spring, Fall**PHPR 6540 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.

Term Offered: Fall**PHPR 6560 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 6540 with a minimum grade of D-**Corequisites:** PHPR 6360**Term Offered:** Spring**PHPR 6600 Seminar In Administrative Pharmacy**

[1 credit hour]

A critical analysis of current problems in pharmacy practice with individual case presentations.

Prerequisites: MBC 5310 with a minimum grade of D- and PHCL 5700 with a minimum grade of D- and PHM 5000 with a minimum grade of D-**Corequisites:** PHPR 6360**Term Offered:** Spring, Fall**PHPR 6670 Chemical Dependency And The Pharmacist**

[3 credit hours]

Overview of chemical dependency and substance abuse, with emphasis on the neuropathophysiology of dependency and the pharmacology of drugs of abuse. Also include an extensive review of the impact of chemical dependency on the healthcare professional, with a focus on their impact to pharmacists.

Term Offered: Fall**PHPR 6700 Special Topics in Diabetes Care**

[2 credit hours]

This course focuses on advanced and special population topics in the area of diabetes care and management through discussions, lecture-based teaching and group activities.

Term Offered: Fall**PHPR 6710 Skin Delivery of Cosmetic Actives**

[3 credit hours]

Advanced study of skin delivery concepts and methods with a special focus on cosmetic actives.

Prerequisites: PHPR 5800 with a minimum grade of C**Term Offered:** Spring**PHPR 6720 Global Cosmetic Regulations**

[3 credit hours]

Detailed discussion of global cosmetic, personal care, and OTC-drug cosmetic regulations focusing on claim substantiation, manufacturing, packaging, advertising, and testing.

Prerequisites: PHPR 5800 with a minimum grade of C and PHPR 5830 with a minimum grade of C**Term Offered:** Spring, Summer, Fall**PHPR 6730 Sustainable Product Development**

[3 credit hours]

An overview of the socio-economic demand for sustainable products and how it is shaping the behavior and practices of both consumers and manufacturers alike in cosmetic/personal care product development.

Prerequisites: PHPR 5800 with a minimum grade of C**Term Offered:** Spring, Summer, Fall

PHPR 6740 Skin Microbiome

[3 credit hours]

An in-depth review of the skin microbiome, product claims and labeling, and the future of skin health.

Prerequisites: PHPR 5800 with a minimum grade of C

Term Offered: Spring, Summer, Fall

PHPR 6750 Cosmetic Science Formulation Lab

[1 credit hour]

A laboratory course that focuses on cosmetic and personal care product formulation and testing basics.

Prerequisites: PHPR 5800 with a minimum grade of C

Term Offered: Summer

PHPR 6770 Cosmetic Science Project

[3 credit hours]

An independent research project requiring students to synthesize their knowledge gained in previous coursework and create potential solutions for a real-life concept or problem.

Prerequisites: PHPR 5800 with a minimum grade of C

Term Offered: Spring, Summer, Fall

PHPR 6850 Product Development Laboratory

[2 credit hours]

A study of various stages of development of pharmaceutical products. The student will develop formulations, using stability data and production technology for three products.

Prerequisites: PHPR 5690 with a minimum grade of D-

Term Offered: Spring

PHPR 6860 Advanced Drug Delivery Lab

[2 credit hours]

This lab course is designed to provide students hands-on experience and improve their practical knowledge in areas of industrial pharmacy and advanced pharmaceuticals. This course would introduce students to the wide range of cutting-edge techniques in the pharmaceutical industry.

Term Offered: Spring, Fall

PHPR 6920 Introductory Pharmacy Practice Experience 5

[1 credit hour]

Third professional year course designed to enhance professional growth through application of skills and knowledge gained in IPPE-3 and IPPE-4 to various areas of pharmacy practice to provide the best possible patient care.

Term Offered: Fall

PHPR 6930 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 6950 Seminar In Industrial Pharmacy

[1 credit hour]

A seminar course composed of graduate student presentations on their research and special topics as well as outside speakers from both the community and pharmaceutical industry.

Term Offered: Spring, Summer, Fall

PHPR 6960 M.S. Thesis Research In Pharmacy

[1-6 credit hours]

Advanced and in-depth study of an issue pertinent to contemporary pharmacy practice. Part of degree requirement for M.S. in Pharmaceutical Sciences.

Term Offered: Spring, Summer, Fall

PHPR 6970 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 6980 Special Topics

[1-5 credit hours]

Selected study of topics in Pharmacy Practice. New pharmacy and healthcare strategies are examined in detail.

Term Offered: Spring, Summer, Fall

PHPR 8940 Clinical Clerkship

[4 credit hours]

The APPE sequence is a fulltime onsite clinical experience designed to allow students to apply knowledge and skills gained in the didactic and IPPE curriculum. The APPE sequence consists of 9 fulltime (40 hour per week) rotations.

Term Offered: Spring, Summer, Fall

PHPR 8980 Special Topics

[1-5 credit hours]

Selected study of topics in Pharmacy Practice. New Pharmacy and healthcare strategies are examined in detail.

Term Offered: Spring, Summer, Fall