Department of Pharmacy Practice

Pharmacy Practice Graduate Program

The Department of Pharmacy practice furthers the mission of the School of Pharmacy by striving for excellence in teaching, research, scholarly activity, service, and patient care.

The faculty provide professional educational opportunities for undergraduate, graduate, and postgraduate students and practitioners to enable them to practice pharmaceutical care, adapt to changing professional roles, use new technologies, assume leadership roles in a dynamic health-care environment, and contribute new knowledge to the profession.

Facilities

Facilities of the pharmacy department at the University of Kansas Medical Center (http://www.kumc.edu) in Kansas City are used in the residency portion of the program.

Department of Pharmacy Practice - Lawrence

2010 Becker Drive, Room 2001
Lawrence, KS 66047
785-864-4881
http://pharmpractice.ku.edu/

David Henry, Chair and Graduate Advisor
785-864-4881

Department of Pharmacy Practice - KUMC

KU Medical Center, 6330 Wescoe
Mail Stop 4040, 3910 Rainbow Blvd.
Kansas City, KS 66160
913-588-5360
http://pharmpractice.ku.edu/

David Henry, Chair and Graduate Advisor
913-588-5360

Courses

PHPR 506. Precision Medicine. 1 Hour.
This course will address the role of precision medicine in pharmacy practice and is designed to extend the students' understanding of the basis for interindividual variation in drug response and the evolving role of the pharmacist. The course will include required readings, lectures, cases and in-class discussions that focus on the evidence and practicality of precision medicine in pharmacy practice. Using selected examples, students will learn about patient factors that drive variability in drug response and how these factors drive drug selection and dosing. With the current focus on the use of genomic data to drive individualized therapy, students will learn about current pharmagenomic-based practice guidelines and clinical practice references. Students will prepare a 2-page writing assignment and an in-class presentation on the impact of precision medicine on pharmacy practice. Prerequisite: Must be admitted to the School of Pharmacy. LEC.

PHPR 507. Advanced Community Practice. 1 Hour.
The objective of this course is to prepare pharmacy students to practice as advanced pharmacists in a community setting. The course will cover patient care as well as the business and insurance aspects surrounding community pharmacy practice. We will cover a variety of topics including reimbursement, legal issues, Medication Therapy Management (MTM), communication, ethics, and the future of Community Pharmacy practice. Prerequisite: 3rd professional year standing in the School of Pharmacy. LEC.

PHPR 508. Oncology Elective. 1 Hour.
This course is designed to extend the students' understanding of Oncology diseases and treatments beyond what is covered in the Pharmacotherapy series in the School of Pharmacy. Prerequisite: PHPR 646. LEC.

PHPR 509. Medicare Part D. 1 Hour.
This elective course will focus on the understanding and active enrollment of patients into Medicare prescription drug benefit (Part D). Students will mainly focus on the understanding of Medicare eligibility, benefits, formulary requirements, and the administration of benefits. Students will also participate in community outreach which may focus on underserved patients. Prerequisite: 2nd or 3rd professional year standing in the School of Pharmacy. LEC.

PHPR 510. Medical Terminology Elective. 1 Hour.
This course provides the fundamentals for developing a medical vocabulary. The student will develop the ability to understand, define and utilize medical terminology and abbreviations used in patient care. LEC.

PHPR 511. Service-Learning Elective. 1 Hour.
Students will work at a health-related community center and participate in structured learning exercises. The objectives are to: 1) enable students to learn appropriate strategies to communicate and provide services to people with varying languages, cultures, social, and economic backgrounds, disabilities, illnesses, or impairments, 2) increase social interaction and citizenship, 3) heighten social awareness and understanding of ethical issues, and 4) acknowledge social responsibility and realize personal values. FLD.

PHPR 512. Nuclear Pharmacy. 1 Hour.
This course is designed for students interested in learning about nuclear pharmacy practice as a specialty practice in pharmacy. Students will learn about the application of radiopharmaceuticals used in the diagnosis of various diseases or identifying patient therapeutic issues. The course will cover principles of radiation, radiation safety, preparation of and handling of radiopharmaceuticals, their appropriate use, and the training requirements for a nuclear pharmacist. At the conclusion of the course the student will have an insight into this specialty practice in nuclear pharmacy as a potential career. Prerequisite: Students must be admitted to the School of Pharmacy. LEC.

PHPR 513. Chemical Dependency Elective. 1 Hour.
This elective course will enhance the pharmacy student's knowledge and understanding of the current theories behind the addiction process, frequently abused drugs and/or chemicals and the treatment and recovery process. Prerequisite: Must be accepted to the Pharmacy Program. LEC.

PHPR 514. Communication and Counseling. 1 Hour.
An elective course designed to help students improve professional communication skills. Prerequisite: PHAR 500. LEC.

PHPR 515. The Aging Patient. 1 Hour.
This elective course is designed for the learner to explore many of the clinical considerations employed when caring for the aging patient within our health care system. The course will be devoted to exploring generational perceptions, learning how the aging process can impact...
patient care, and identifying the role of the pharmacist in enhancing this care. Prerequisite: 4th or 5th professional year (P2 or P3) standing in the School of Pharmacy. LEC.

**PHPR 516. Pharmacy in Public Health. 1 Hour.**
Public health is more than providing treatment for an illness; it is a concern for the health of an entire population. The ideal is to ensure the health of all. This course will focus on providing students with a solid foundational understanding of what public health is and how pharmacists play a role as a public health provider. The course will cover the concepts and tools used in public health including issues such as: determining health, cultural competence, health promotion, disease prevention, epidemiology and disease, describing populations and community health. Lastly, the course will provide students with specific pharmacist models of public health. Successful models include tobacco cessation programs, community vaccination programs, obesity prevention, tuberculosis monitoring, emergency preparedness and domestic violence. Prerequisite: Must be accepted to the Pharmacy Program. LEC.

**PHPR 517. Medication Safety and Error Prevention. 1 Hour.**
This course introduces the student to medication safety and the technology as well as the tools used in error prevention. The student will also learn about adverse drug events including both medication errors and adverse drug reactions in hospital and retail pharmacy settings. Prerequisite: 4th or 5th professional year (P2 or P3) standing in the School of Pharmacy. LEC.

**PHPR 518. Cultural Competency in Pharmacy Practice. 1 Hour.**
The United States becomes more culturally diverse every year. This course is designed to help student pharmacists excel in today’s multicultural environment by improving their cultural competency skills. Students will explore their own culture and those belonging to other diverse cultures. Students are expected to learn of the beliefs, needs and tendencies of those with cultures much different than themselves. Prerequisite: Must be admitted to the School of Pharmacy. LEC.

**PHPR 519. Business Planning for Pharmacy. 1 Hour.**
This course is designed for students interested in developing a business plan. Most pharmacists will have an opportunity to develop a new service, product line or even start a new business venture in their careers. Students need to know how to create a formal business plan and how to present the plan to decision makers. The course will cover the basic components and rationale of creating a formal a business plan. When finished students will be expected to have created a written business plan and will present their creation to the class. In this manner, students will gain experience in developing an idea into a plan. Prerequisite: Students must be admitted to the School of Pharmacy. LEC.

**PHPR 520. Specialty Pharmacy. 1 Hour.**
This course will review a variety of diseases including: multiple sclerosis, hepatitis C and autoimmune conditions (psoriasis, ulcerative colitis, etc) and the specialty medications used to treat these conditions. Specialty pharmacy accreditation standards as well as topic discussions reviewing many issues facing the specialty pharmacy industry will be discussed. Guest speakers from different specialty pharmacies in the greater Kansas City area will also present information on their career experiences. Prerequisite: Limited to P2s and P3s. LEC.

**PHPR 521. Practical Pediatrics. 1 Hour.**
This course will expose students to conditions frequently encountered in pediatric care. Students will further develop knowledge and skills necessary to provide appropriate pediatric care in institutional, ambulatory, and community practice settings. The course will involve interactive lectures followed by case-based learning to promote student application of knowledge to relevant clinical situations. Prerequisite: Students must be admitted to the School of Pharmacy and must be in their 3rd professional year. LEC.

**PHPR 522. Pharmacy-Based Travel Health Services. 1 Hour.**
This course reviews pertinent problems traveling entails and services pharmacists can provide for traveling patients. The course will involve interactive lectures followed by case-based learning to promote student application of knowledge to relevant clinical situations. Following the completion of this course, students should be able to recognize the need to establish travel health services, the role of pharmacists in these services, identify the commonly encountered disease states and problems for travelers, and what components comprise travel health by utilizing comprehensive knowledge, skills and resources necessary to establish and deliver successful travel health service. Prerequisite: Students must be admitted to the School of Pharmacy and must be in their 2nd or 3rd professional year. Students must have successfully completed the APhA Pharmacy-Based Immunization Delivery program. LEC.

**PHPR 523. Critical Care Problem-Based Learning. 1 Hour.**
This is an elective course focusing on advanced clinical decision making within the field of critical care. Using clinical critical care cases, student will work as a team to assess and make therapeutic recommendations through problem-based learning exercises. These activities aim to prepare students for advanced pharmacy practice and residency experiences in acute care settings by providing instruction in application of primary literature to patient cases, following patient progress through emergency department and intensive care settings, and oral presentation of evidence-based patients cases. Additionally, students will participate in an acute care interprofessional simulation. Prerequisite: Students must be admitted to the School of Pharmacy and must be in their 3rd professional year. LEC.

**PHPR 524. Medication-Related Issues and the Social Determinants of Health for Underserved Patients. 1 Hour.**
This course will review a variety of topics related to the social determinants of health with a focus on barriers and solutions around pharmacy and medication-related issues. A focus of the course will be on the under-served patient population of Wyandotte County in Kansas City, KS which is the county with the worst health outcomes and statistics in the state. The main teaching method used in the course will be experiential learning. Students will complete two half-days (approximately 4 hours/session) at Riverview Health Services in Kansas City, KS. During the two half-days students will actively observe medication intake/reconciliation appointments to enroll patients in medication assistance programs to obtain their medications for free. Students will be incorporated and play an active role in the workflow during the second session. Finally, students will present a 15-minute presentation to Riverview staff about a medication related topic for their professional development. Additionally, the entire class will meet during 4 sessions in Lawrence where students enrolled in the elective will meet to review pertinent topics (a few guest speakers), work on and peer-review upcoming presentations and debrief their experiences. This is a unique and immersive learning opportunity to expose you to issues of caring for under-served patient populations and sharpen your verbal presentation skills for a professional audience. Graded on a satisfactory/unsatisfactory basis. Prerequisite: Limited to P2 students in the PharmD program. LEC.

**PHPR 541. Foundations of Interprofessional Collaboration I. 0 Hours.**
This TeamSTEPPS Level 1 experience will introduce interprofessional students to the basic concepts of interprofessional collaboration including values and ethics, roles and responsibilities of healthcare team members, and interprofessional communication tools using the evidence-based national curriculum of TeamSTEPPS. Upon completion of this training experience students will be able to 1) demonstrate a work ethic with
individuals of other professions to maintain a climate of mutual respect and shared values; 2) define the role of health professions (including your own) within the healthcare system; 3) identify opportunities to seek expertise of health professionals to improve communication and healthcare; and 4) acquire basic TeamSTEPPS communication tools to effectively use with healthcare teams. Graded on a satisfactory/unsatisfactory basis. Prerequisite: P1 standing. LEC.

**PHPR 542. Foundations of Interprofessional Collaboration II. 0 Hours.**
This TeamSTEPPS Level 2 experience will provide interprofessional students opportunities to apply key knowledge and skills gained in FIPC I, through role-play and case-based learning. Students will apply their knowledge of roles and responsibilities of healthcare team members and interprofessional communication tools and continue learning with, from, and about students from other professions. Upon completion of this training experience students will be able to: 1) engage diverse healthcare professionals who complement one's own professional expertise, as well as associated resources, to develop strategies to meet specific patient care needs; 2) choose effective communication tools and techniques, including information systems and communication technologies, to facilitate discussions and interactions that enhance team function; and 3) engage other health professionals appropriate to the specific care situation—in shared patient-centered problem-solving. Graded on a satisfactory/unsatisfactory basis. Prerequisite: P1 standing. LEC.

**PHPR 543. Foundations of Interprofessional Collaboration III. 0 Hours.**
This TeamSTEPPS Level 3 experience will provide interprofessional students opportunities to demonstrate key knowledge and skills gained in FIPC I and II, through simulation. Students will demonstrate their interprofessional communication skills, including specific opportunities to utilize TeamSTEPPS tools. Students will also demonstrate their teamwork abilities by working with interprofessional students during the simulation. Upon completion of this training experience students will be able to: 1) demonstrate communicating effectively with other health professionals about a patient case; 2) exhibit teamwork skills with an interprofessional healthcare team; and 3) utilize key TeamSTEPPS tools with an interprofessional healthcare team. Graded on a satisfactory/unsatisfactory basis. Prerequisite: P2 standing. LEC.

**PHPR 599. Clinical Application of Basic Science. 1 Hour.**
This course is an inter-departmental, team-based, technology-centric elective course. Concomitantly, instructors from the basic and clinical science departments within the school of pharmacy will promote deeper student understanding of the path a drug takes from discovery, development and ultimately clinical use. Instructors will collaborate in course content development to integrate basic and clinical science concepts. The course will utilize a blended learning method, incorporating out of class podcasts, online group collaborative projects, and readiness quizzes and exams. Prerequisite: 4th or 5th professional year standing (P2/P3) in the school of pharmacy and concomitant enrollment in either PTX 599, MDCM 599, or PHCH 599 is required. LEC.

**PHPR 601. Advanced Pharmacy Practice Experience 1. 4 Hours.**
The final year of the Doctor of Pharmacy program is spent participating in pharmacy practice experience rotations. These consist of nine, one-month rotations, in various health care settings. Such practice settings may include a variety of acute care, ambulatory care, managed care, hospital and community practice sites. Each rotation provides an academically structured environment that enables the student to gain practical experience under the guidance of a practicing health care professional. The purpose of providing pharmacy students with a pharmacist role model is to foster the development of both professional confidence as well as competence. These practice-based experience settings encourage the student to apply their didactic education to clinical problem solving. Both clinical and distributive pharmacy services will be integrated in these experiences for optimal learning. This course is graded using an "Excellent", "Satisfactory", or "Unsatisfactory" grading basis. FLD.

**PHPR 602. Advanced Pharmacy Practice Experience 2. 4 Hours.**
The final year of the Doctor of Pharmacy program is spent participating in pharmacy practice experience rotations. These consist of nine, one-month rotations, in various health care settings. Such practice settings may include a variety of acute care, ambulatory care, managed care, hospital and community practice sites. Each rotation provides an academically structured environment that enables the student to gain practical experience under the guidance of a practicing health care professional. The purpose of providing pharmacy students with a pharmacist role model is to foster the development of both professional confidence as well as competence. These practice-based experience settings encourage the student to apply their didactic education to clinical problem solving. Both clinical and distributive pharmacy services will be integrated in these experiences for optimal learning. This course is graded using an "Excellent", "Satisfactory", or "Unsatisfactory" grading basis. FLD.

**PHPR 603. Advanced Pharmacy Practice Experience 3. 4 Hours.**
The final year of the Doctor of Pharmacy program is spent participating in pharmacy practice experience rotations. These consist of nine, one-month rotations, in various health care settings. Such practice settings may include a variety of acute care, ambulatory care, managed care, hospital and community practice sites. Each rotation provides an academically structured environment that enables the student to gain practical experience under the guidance of a practicing health care professional. The purpose of providing pharmacy students with a pharmacist role model is to foster the development of both professional confidence as well as competence. These practice-based experience settings encourage the student to apply their didactic education to clinical problem solving. Both clinical and distributive pharmacy services will be integrated in these experiences for optimal learning. This course is graded using an "Excellent", "Satisfactory", or "Unsatisfactory" grading basis. FLD.

**PHPR 604. Advanced Pharmacy Practice Experience 4. 4 Hours.**
The final year of the Doctor of Pharmacy program is spent participating in pharmacy practice experience rotations. These consist of nine, one-month rotations, in various health care settings. Such practice settings may include a variety of acute care, ambulatory care, managed care, hospital and community practice sites. Each rotation provides an academically structured environment that enables the student to gain practical experience under the guidance of a practicing health care professional. The purpose of providing pharmacy students with a pharmacist role model is to foster the development of both professional confidence as well as competence. These practice-based experience settings encourage the student to apply their didactic education to clinical problem solving. Both clinical and distributive pharmacy services will be integrated in these experiences for optimal learning. This course is graded using an "Excellent", "Satisfactory", or "Unsatisfactory" grading basis. FLD.

**PHPR 605. Advanced Pharmacy Practice Experience 5. 4 Hours.**
The final year of the Doctor of Pharmacy program is spent participating in pharmacy practice experience rotations. These consist of nine, one-month rotations, in various health care settings. Such practice settings may include a variety of acute care, ambulatory care, managed care, hospital and community practice sites. Each rotation provides an academically structured environment that enables the student to gain practical experience under the guidance of a practicing health care professional. The purpose of providing pharmacy students with a pharmacist role model is to foster the development of both professional confidence as well as competence. These practice-based experience settings encourage the student to apply their didactic education to clinical problem solving. Both clinical and distributive pharmacy services will be integrated in these experiences for optimal learning. This course is graded using an "Excellent", "Satisfactory", or "Unsatisfactory" grading basis. FLD.
as competence. These practice-based experience settings encourage the student to apply their didactic education to clinical problem solving. Both clinical and distributive pharmacy services will be integrated in these experiences for optimal learning. This course is graded using an “Excellent”, “Satisfactory”, or “Unsatisfactory” grading basis. FLD.

**PHPR 606. Advanced Pharmacy Practice Experience 6. 4 Hours.**
The final year of the Doctor of Pharmacy program is spent participating in pharmacy practice experience rotations. These consist of nine, one-month rotations, in various health care settings. Such practice settings may include a variety of acute care, ambulatory care, managed care, hospital and community practice sites. Each rotation provides an academically structured environment that enables the student to gain practical experience under the guidance of a practicing health care professional. The purpose of providing pharmacy students with a pharmacist role model is to foster the development of both professional confidence as well as competence. These practice-based experience settings encourage the student to apply their didactic education to clinical problem solving. Both clinical and distributive pharmacy services will be integrated in these experiences for optimal learning. This course is graded using an “Excellent”, “Satisfactory”, or “Unsatisfactory” grading basis. FLD.

**PHPR 607. Advanced Pharmacy Practice Experience 7. 4 Hours.**
The final year of the Doctor of Pharmacy program is spent participating in pharmacy practice experience rotations. These consist of nine, one-month rotations, in various health care settings. Such practice settings may include a variety of acute care, ambulatory care, managed care, hospital and community practice sites. Each rotation provides an academically structured environment that enables the student to gain practical experience under the guidance of a practicing health care professional. The purpose of providing pharmacy students with a pharmacist role model is to foster the development of both professional confidence as well as competence. These practice-based experience settings encourage the student to apply their didactic education to clinical problem solving. Both clinical and distributive pharmacy services will be integrated in these experiences for optimal learning. This course is graded using an “Excellent”, “Satisfactory”, or “Unsatisfactory” grading basis. FLD.

**PHPR 608. Advanced Pharmacy Practice Experience 8. 4 Hours.**
The final year of the Doctor of Pharmacy program is spent participating in pharmacy practice experience rotations. These consist of nine, one-month rotations, in various health care settings. Such practice settings may include a variety of acute care, ambulatory care, managed care, hospital and community practice sites. Each rotation provides an academically structured environment that enables the student to gain practical experience under the guidance of a practicing health care professional. The purpose of providing pharmacy students with a pharmacist role model is to foster the development of both professional confidence as well as competence. These practice-based experience settings encourage the student to apply their didactic education to clinical problem solving. Both clinical and distributive pharmacy services will be integrated in these experiences for optimal learning. This course is graded using an “Excellent”, “Satisfactory”, or “Unsatisfactory” grading basis. FLD.

**PHPR 609. Advanced Pharmacy Practice Experience 9. 4 Hours.**
The final year of the Doctor of Pharmacy program is spent participating in pharmacy practice experience rotations. These consist of nine, one-month rotations, in various health care settings. Such practice settings may include a variety of acute care, ambulatory care, managed care, hospital and community practice sites. Each rotation provides an academically structured environment that enables the student to gain practical experience under the guidance of a practicing health care professional. The purpose of providing pharmacy students with a pharmacist role model is to foster the development of both professional confidence as well as competence. These practice-based experience settings encourage the student to apply their didactic education to clinical problem solving. Both clinical and distributive pharmacy services will be integrated in these experiences for optimal learning. This course is graded using an “Excellent”, “Satisfactory”, or “Unsatisfactory” grading basis. FLD.
safety. Pharmacoepidemiology is the application of the principles of epidemiology to the study of medications and their effects. Considerations are centered on providing beneficial or adverse effects of medication use in large populations and making relevant inferences from essential analytical research designs used in public health. Using population-based-care approach, students will adopt and fulfill public health roles and activities. This course provides a broad introduction to the principles of pharmacoepidemiology and public health with a focus on applications in the field of pharmacy. Prerequisite: Third professional year standing in the School of Pharmacy. LEC.

PHPR 629. Research Design and Biostatistics. 2 Hours.
This course reviews study designs and statistical methods commonly used in primary medical literature. In collaboration with other courses in the curriculum, this course prepares students to interpret and apply primary literature during patient care, collect and analyze data, and maintain clinical competency throughout their professional career in pharmacy. Following completion of this course, students should be able to identify or select appropriate research methods and study designs; collect, summarize and interpret research data; understand basic statistical concepts; identify or select appropriate statistical tests for hypothesis testing; conduct and interpret the results of statistical tests; and evaluate the validity and reliability of published research studies. LEC.

PHPR 630. Drug Information and Literature Evaluation. 1 Hour.
This course will review the fundamental tools used to identify drug information in primary, secondary and tertiary resources. In addition, students will learn to assess published literature, utilize electronic resources, and learn to formulate a response to drug information questions. Following completion of this course, students will be able to understand the strengths and weaknesses of the drug information resources and to apply drug information skills to clinical practice relevant to patient care. Prerequisite: Successful completion of PHPR 629. LEC.

PHPR 635. Problems in Pharmacy Practice. 1-5 Hours.
A course designed for the study of special topics in pharmacy practice. A research paper will be required. Prerequisite: Consent of instructor. IND.

PHPR 661. Pharmacotherapy I. 4 Hours.
A course dealing with the clinical applications of drug knowledge to patient care. Drug interactions and patient counseling techniques will be covered. Over-the-counter medications and herbals will also be a significant portion of the course. Prerequisite: First year professional standing in the School of Pharmacy. LEC.

PHPR 662. Pharmacotherapy II. 4 Hours.
A course dealing with the clinical applications of drug knowledge to patient care. Disease and drug knowledge will be applied to the design and monitoring of therapeutic treatment plans for patients. Prerequisite: Second year professional standing in the School of Pharmacy and successful completion of Pharmacotherapy I, PHPR 661. LEC.

PHPR 663. Pharmacotherapy III. 4 Hours.
A course dealing with the clinical applications of drug knowledge to patient care. Disease and drug knowledge will be applied to the design and monitoring of therapeutic treatment plans for patients. Prerequisite: Second professional year standing in the School of Pharmacy and successful completion of Pharmacotherapy II, PHPR 662. LEC.

PHPR 664. Pharmacotherapy IV. 4 Hours.
A course dealing with the clinical applications of drug knowledge to patient care. Disease and drug knowledge will be applied to the design and monitoring of therapeutic treatment plans for patients. Prerequisite: Third professional year standing in the School of Pharmacy and successful completion of Pharmacotherapy III, PHPR 663. LEC.

PHPR 665. Pharmacotherapy V. 4 Hours.
A course dealing with the clinical applications of drug knowledge to patient care. Disease and drug knowledge will be applied to the design and monitoring of therapeutic treatment plans for patients. Prerequisites: Third professional year standing in the School of Pharmacy and successful completion of Pharmacotherapy IV, PHPR 664. LEC.

PHPR 670. Clinical Assessment. 2 Hours.
This laboratory course will allow students to develop clinical assessment skills necessary in the provision of pharmaceutical care to patients with a variety of disease states. Students will combine physical assessment skills, patient counseling skills, and pharmacotherapy knowledge and apply this information to patient care related activities in various clinical settings. Students will apply their skills using various practice models that include medication therapy management, collaborative drug therapy management, and interprofessional healthcare teams. The lab component will require students to meet between 1:00 to 5:00 PM on either Monday, Tuesday, or Wednesdays. In addition, there is a required Thursday discussion section. A detailed schedule of lab meeting dates and times will be provided in the syllabus. Prerequisite: Students must be admitted to the School of Pharmacy to enroll in this class. Students must pass PHPR 664 to be eligible to complete PHPR 670. LAB.

PHPR 690. Research in Pharmacy Practice. 1-5 Hours.
Students will conduct original research in a laboratory, educational, or clinical research setting under the supervision of department faculty. Prerequisite: Students must be admitted to the School of Pharmacy to enroll in this class. RSH.

PHPR 845. Professional Communications and Leadership. 2 Hours.
A course designed to give the graduate student a practical experience in areas of professional communications such as administrative proposals, grants, letters, memos, poster presentations, and written papers. The course focuses on the different kinds of communications required to relate to other health care professionals. Prerequisite: Consent of instructor. LEC.

PHPR 850. Introduction to Pharmacoepidemiology. 3 Hours.
Pharmacoepidemiology is the application of the principles of epidemiology to the study of medications and their effects on health. Evaluating a drug's effects commences when a chemical entity becomes a drug candidate, intensifies through clinical trials, and continues after products reach the market. These studies are critical for supporting the proper use of medications in terms of efficacy, effectiveness, and cost-effectiveness. This course provides a broad introduction to the principles of pharmacoepidemiology with a focus on applications in the medical literature. LEC.

PHPR 855. Economic Evaluation of Health Care Programs and Services. 3 Hours.
The course will provide students with an overview and appraisal of the "state-of-the-art" in the evaluation of health care programs and services (with a special emphasis on pharmaceutical programs, services, and products). The purpose of the course is to provide the student with the tools to conduct economic rather than general evaluation of health care programs and services. There will be some discussion of theoretical concepts, but the major emphasis will be on practical methodological issues in economic evaluation of pharmaceutical programs. The course integrates the perspectives of pharmaceutical and health care technology assessment, managed care, outcomes research, and public health. The main topics covered in the course include: cost, cost-minimization, cost-effectiveness, cost-utility, and cost-benefit analyses. LEC.
PHPR 860. Seminar in Pharmacy Practice. 1 Hour.
Research reports, reviews, and/or presentations on the current status of various aspects of pharmacy practice. Prerequisite: Consent of instructor. LEC.

PHPR 865. Advanced Institutional Pharmacy Services I. 1.5 Hour.
Advanced Institutional Pharmacy Services (I) includes activities involving administrative and behavioral science techniques to manage 'the business of pharmacy practice'. Topics and information will be borrowed from the disciplines of business management, accounting, economics, finance, marketing, operations research and applied to the practice of pharmacy. Upon completion of the course, students should be able to explain, understand and apply pharmacy practice management techniques in the following general areas: business management, pharmacy financial management and operations management. Prerequisite: Consent of instructor. LEC.

PHPR 866. Advanced Institutional Pharmacy Services II. 1.5 Hour.
Advanced Institutional Pharmacy Services (II) includes activities involving administrative and behavioral science techniques to manage 'the business of pharmacy practice'. Topics and information will be borrowed from the disciplines of business management, accounting, economics, finance, marketing, operations research and applied to the practice of pharmacy. Upon completion of the course, students should be able to explain, understand and apply pharmacy practice management techniques in the following general areas: human resource management, clinical services management, specialty pharmacy services and technology management. Prerequisite: Consent of Instructor. LEC.

PHPR 875. Health Care Delivery Systems. 3 Hours.
A continuation of PHPR 865 dealing with the current status of health care delivery systems and the impact of changes in this area on pharmacy practice. Prerequisite: PHPR 865 and consent of instructor. LEC.

PHPR 885. Human Resource Management in Institutional Pharmacy Practice. 3 Hours.
A course dealing with recruitment, training, motivation, monitoring of performance, and disciplining of personnel. Seminars, case studies, and role playing are used to apply the information to specific human resource management situations in institutional pharmacy practice. Prerequisite: PHPR 865 and consent of instructor. LEC.

PHPR 899. Research in Pharmacy Practice. 1-6 Hours.
Original investigation in the area of pharmacy practice. Prerequisite: Consent of instructor. RSH.