PPR 6300 Patients' Perspectives on Health, Illness, and Culture (2 credits)
Coordinator: Mary Beth O'Connell, Pharm.D.
Offered in Spring/Summer Semester (limited to 30 students) in odd numbered years (2013, 2015, etc.)
During this course, students will read books, watch movies, and listen to people’s stories about experiences with illness and culture, and thereby will experience indirectly illness from the patient's perspective. These educational events will also help students develop empathy for patients with illness and their family, expand knowledge about different chronic illnesses, understand the impact and utilize cultural characteristics on coping and treatment, adjust communications and pharmaceutical care for patients with chronic illness to respect and utilize patient's cultural beliefs, and experience an alternative form of therapy.

PPR 6520 Contemporary Issues in Nutrition Support (2 credits)
Co-Coordinators: Pram Kale, Pharm.D. and Sheila Wilhelm, Pharm.D.
Offered in Spring semester (limited to 12 students)
Several topics which will be covered in this new course include the use of nutrition support in specialized populations, the evaluation of fad diets, celiac disease, and review of current topics such as the nutritional consequences of eating disorders or gastric bypass surgery, among others. These topics will build upon what is currently taught in the required curriculum. Students enrolled in this course will be active participants and present topics and participate in journal club discussions. In addition, the students will spend time at a practice site evaluating a patient’s nutrition support therapy. Student self assessment will be required for each completed presentation before instructor evaluation is posted.

PPR 6580 Anticoagulation Management (2 credits)
Co-Coordinators: Candice Garwood, Pharm.D. and Maureen Smythe, Pharm.D.
Offered in Fall Semester (limited to 12 students)
This elective course will build on the foundation of anticoagulation knowledge introduced in the Cardiology Therapeutics Module taught in the second year of the pharmacy curriculum. Pharmacists often have a lead role in managing anticoagulation in various practice settings. This interactive, discussion based course will allow students to develop advanced knowledge in the area of anticoagulation and practical skills in anticoagulation management in both the inpatient and outpatient setting. Unique aspects planned for this course include: presentation of practice-based cases and therapeutic controversies, interactive therapeutic debates, anticoagulation practice site visits, a field trip and the opportunity to “live and learn” whereby the students get to experience first hand the challenges of living on anticoagulation.

PPR 6720 Pharmacotherapeutics of Diabetes Mellitus (2 credits)
Co-Coordinators: Helen Berlie, Pharm.D. and Linda Jaber, Pharm.D.
Prerequisite: PHA 5165
Offered in Winter Semester
This is an advanced elective course in the management of diabetes mellitus and its related disorders. This course will build on the diabetes knowledge acquired in the Endocrine Module. The overall goal of this course is to develop the student’s knowledge and skills required to deliver patient-specific pharmacotherapy and self-management education to patients with diabetes. This course incorporates principles of student directed learning, literature discussion and evaluation, and interprofessional exposure. Students will also participate in patient case presentations, small group learning, and hands-on activities such as insulin dosing and a "living with diabetes" project and potluck.
PPR 6770 Study of Medicinal Plants and Culture in Amazonia (2 credits)
Coordinator: Mary Beth O’Connell, Pharm.D.
Offered in Spring/Summer Semester – Commitment to take this course is required by the December before the course is offered.

This course provides the opportunity for “hands on” study in the rain forest of Peru. Students will live on a reserve and travel to meet with botanists, taxonomists, pharmacologists, pharmacists, physicians, shamans, and native farmers. Time in the classroom will focus on the pharmacology, physical chemistry and ethnobotany of indigenous plants. Students will be immersed in a foreign culture and understand the issues related to not knowing the native language and alternative health care philosophies to improve pharmaceutical care skills for patients with various cultural beliefs in the U.S. Information meetings outlining the experience and requirements for this course will begin in the fall prior to the offering.

PPR 7225 Vaccines in Clinical and Public Health Practice (2 credits)
Instructor: Paul Kilgore, M.P.H., M.D.
Offered in Winter and Spring/Summer Semesters

This course introduces students to principles of vaccine development, rationale for vaccine usage, and opportunities for use of vaccines in clinical and public health practice. Specific vaccines used in the United States and other countries are reviewed in terms of the target disease for prevention, evidence for use of vaccines in routine clinical and public health practice, target populations for uptake of the vaccine and potential barriers to use of vaccines in the United States and other countries.

PHA 5110 Pharmacogenomics (2 credits)
Coordinator: Hanley Abramson, Ph.D.
Offered in Spring Semester

Principles and applications of human genetics and genomics in drug therapy optimization, patient care, and counseling.
Topics:
Introduction to pharmacogenomics
History
Role of personalized medicine in clinical practice
Terminology and definitions
Genes and human genetics
Gene expression
Mutations, SNPs, and origins of genetic diversity
Haplotypes, linkage disequilibrium
Genotyping technologies
Socioeconomic issues
Therapeutic applications of pharmacogenomics principles
Important data bases (PharmGKB, DrugBank, OMIM, etc.)
PK/PD drug properties and adverse drug reactions
Specific therapeutic areas: diabetes, psychiatry, pain and anesthesia, anticoagulation therapy, cardiovascular agents, pediatric/fetal/neonatal practice, oncology, antimicrobial therapy.

PSC 5600 Recreational Drug Use and Drug Abuse (2 credits)
Coordinator: Randall L. Commissaris, Ph.D.
Offered in Winter Semester

LECTURES - by Dr. C or guest speakers
Drug Testing in the Workplace
Opiate Pharmacology Review/Update
Ethanol Pharmacology Review/Update
Cocaine and the Dopamine Hypothesis of Reward
Chronic Methamphetamine Treatment Effects
Alcohol Blackouts; Club Drugs
Steroids and other Performance Enhancers
Alcohol Drugs and Driving (including Driving Simulator)
MPA Perspective on Drug Abuse
Forensic Toxicology and Drug Abuse
Prevention Programs; Controlled Drinking
The Drug Legalization Debate
The Practitioner in Recovery
PLUS: One Individual Student Paper/Presentations; Topic: Anything of interest to you in the area of drug abuse
PLUS: One Group Project – A Media-Based Drug Abuse Prevention Project

PSC 6890 Toxicology and Adverse Drug Reactions (3 credits)
Instructor: Robert Louis-Ferdinand, Ph.D.
During the Fall semester, this course is presented in a lecture format and, during the Spring/Summer semester, as a distance education internet course utilizing BlackBoard/ WIMBA software with the assistance of the Office of Teaching and Learning. Utilizing lecture, active learning methods and review literature, the adverse effect of several classes of therapeutic and non-therapeutic xenobiotics, chemoprevention, and antidotal approaches will be presented. Students must have completed the P-2 Principles of Drug Action and modular pharmacology or equivalent before enrolling in this course.
Grades are based on student performance on examinations, quizzes, and class assignments. There is no textbook requirement for this course.

PSC/CE 6910 Pharmaceutical Waste: Environmental Impact & Management (2-3 credits)
Coordinators: David Pitts, Ph.D., Shawn McElmurry, Ph.D., P.E.
Offered in Spring/Summer Semester (limited to 25 students); cross-listed with CE 6910.
Pharmaceuticals and personal care products (PPCPs) have recently been found in surface and ground water as contaminants. Our wastewater treatment plants are not designed to remove these chemicals. PPCPs are considered to be one of many different kinds of the emerging chemical contaminants recently discovered in our water supply. The course covers the issue of emerging contaminants from the perspective of pharmaceutical sciences, environmental engineering, aquatic ecology, and environmental law and policy, and includes a tour of wastewater and drinking water treatment plants. This course is designed for advanced professional students (pharmacy students who have completed their 2nd year, and students in medicine, other health sciences) and graduate students (chem/bio background) interested in the environmental impact, management & regulation of waste pharmaceuticals as emerging contaminants. Graduate students should enroll for 3 credits and will be required to write a report to complete the course requirements.

PSC 8670 Special Topics in Pharmacology (2 credits)
Coordinator: Fusao Hirata, Ph.D.
Offered in Spring/Summer Semester (limited to 20 students)
In this course, genetic backgrounds for pharmacokinetics, pharmacodynamics, and pathophysiology of diseases, developmental aspects of drug metabolism, and sex difference in drug sensitivity will be discussed, based and depending on students’ interest.
Availability of Approved Didactic Electives by Semester: 2015-2017

Winter 2015
- PSC 5600 Recreational Drug Use and Drug Abuse (2 credits)
- PPR 7225 Vaccines in Clinical and Public Health Practice (2 credits)
- PPR 6720 Pharmacotherapeutics of Diabetes Mellitus (2 credits)

Spring/Summer 2015:
- PPR 6300 Patients' Perspectives on Health, Illness, and Culture (2 credits)
- PPR 6520 Contemporary Issues in Nutrition Support (2 credits)
- PPR 6770 Study of Medicinal Plants and Culture in Amazonia (2 credits)
- PPR 7225 Vaccines in Clinical and Public Health Practice (2 credits)
- PHA 5110 Pharmacogenomics (2 credits)
- PSC 6890 Toxicology and Adverse Drug Reactions (Distance learning format; 3 credits)
- PSC 6910 Pharmaceutical Waste: Environmental Impact & Management (2-3 credits)
- PSC 8670 Special Topics in Pharmacology (2 credits)

Fall 2015
- PPR 6580 Anticoagulation Management (2 credits)
- PSC 6890 Toxicology and Adverse Drug Reactions (Lecture format; 3 credits)

Winter 2016
- PSC 5600 Recreational Drug Use and Drug Abuse (2 credits)
- PPR 7225 Vaccines in Clinical and Public Health Practice (2 credits)
- PPR 6720 Pharmacotherapeutics of Diabetes Mellitus (2 credits)

Spring/Summer 2016:
- PPR 6520 Contemporary Issues in Nutrition Support (2 credits)
- PPR 6770 Study of Medicinal Plants and Culture in Amazonia (2 credits)
- PPR 7225 Vaccines in Clinical and Public Health Practice (2 credits)
- PHA 5110 Pharmacogenomics (2 credits)
- PSC 6890 Toxicology and Adverse Drug Reactions (Distance learning format; 3 credits)
- PSC 6910 Pharmaceutical Waste: Environmental Impact & Management (2-3 credits)
- PSC 8670 Special Topics in Pharmacology (2 credits)

Fall 2016
- PPR 6580 Anticoagulation Management (2 credits)
- PSC 6890 Toxicology and Adverse Drug Reactions (Lecture format; 3 credits)

Winter 2017
- PSC 5600 Recreational Drug Use and Drug Abuse (2 credits)
- PPR 7225 Vaccines in Clinical and Public Health Practice (2 credits)
- PPR 6720 Pharmacotherapeutics of Diabetes Mellitus (2 credits)

Spring/Summer 2017
- PPR 6300 Patients' Perspectives on Health, Illness, and Culture (2 credits)
- PPR 6520 Contemporary Issues in Nutrition Support (2 credits)
- PPR 6770 Study of Medicinal Plants and Culture in Amazonia (2 credits)
- PPR 7225 Vaccines in Clinical and Public Health Practice (2 credits)
- PHA 5110 Pharmacogenomics (2 credits)
- PSC 6910 Pharmaceutical Waste: Environmental Impact & Management (2-3 credits)
- PSC 8670 Special Topics in Pharmacology (2 credits)
Pharm.D. Elective Courses: Frequently Asked Questions

What is an elective course?

An elective course may be a didactic, experiential, or directed study course selected by a student as an area of interest and professional development. Elective courses should have a syllabus with the same required elements as required courses. Level of difficulty should be commensurate with a graduate level experience. A list of available elective courses will be made available to students.

Why are electives included in the Doctor of Pharmacy curriculum?

Elective courses are designed to allow students to explore areas of interest in a depth not possible throughout the general curriculum. In addition, elective courses are intended to allow students to expand their knowledge and skills to help improve preparation for the career track each intends to pursue.

Who is eligible for electives?

Pharmacy students can take electives after completing P1 winter semester. Each elective course has prerequisites established by the faculty. There are specific hours identified for elective coursework in the P3 year. Electives may be available to students whose progression in the program has been delayed.

How should an elective be chosen?

Each student should plan to meet with his/her faculty advisor and/or faculty mentor to discuss individual interests and needs and to select the best elective options.

What elective opportunities are available?

Students have the opportunity to complete 12 credit hours of electives during the Doctor of Pharmacy Program. Four credits must be taken by the end of the P3 year and two elective advanced practice rotations are taken in the P4 year.

Only one elective (2 credits) can be taken before spring/summer of the second year (after completing P2 winter semester). Only one elective course may be taken in each P3 semester. Only 2 credits can be taken as a Directed Study course(s).

In the P4 year, students are provided the opportunity to take 2 advanced practice rotations as electives. The offerings available for these electives will be provided to the students as they are requesting their P4 advanced practice experiences.

Can courses offered outside of the PharmD program be taken for elective credit?

Courses offered outside of the Pharm.D. program, i.e., those provided elsewhere in the College or University, as well as at other universities, may be considered for elective credit, provided advance approval of the course is obtained in writing from the chair of the Curriculum Committee. Students wishing to obtain elective credit for such courses should provide a syllabus for the course, as well as a statement concerning how the course will contribute to the student’s professional development.

Can courses taken prior to entering the PharmD program be taken for elective credit?

No. Courses completed prior to entering the PharmD program cannot be used to satisfy the elective requirement.
What is a directed study course?

A directed study must be in the areas of pharmaceutical science, pharmacy practice or social and administrative pharmacy and must involve a significant body of knowledge and/or work relevant to the study of and/or practice of pharmacy. The study must be at an advanced academic or professional level. It should not duplicate work in any courses previously taken in the pharmacy program. Students may include a directed study as one of their electives. Directed studies are to be arranged with the coordinating faculty member with the goal of exposing students to research or practice environments on an individual basis. The student and faculty member should establish written goals. The level of difficulty of the learning experience should be commensurate with a graduate level experience. The student must confer with the faculty member offering the directed study prior to class registration.

How many students are enrolled in a directed study course?

Directed study courses provide students the opportunity to obtain individual experience working with a faculty member. While the number of students enrolled in a given directed study during a given semester may vary, it would be very unusual for a faculty member to enroll more than 2 or 3 students at any one time. The designation ‘Directed Study’ should not be used for a regularly-offered (e.g., annually-offered, exception for first time offerings) classroom-type course.

What are the time commitments for a directed study course?

The faculty member directing the directed study course will decide the number of credit hours for which a student may register. At a minimum, one credit hour will entail at least 40 hours of intensive study and research during the semester. A two credit hour directed study, therefore, should be expected to entail at least 80 hours of intensive study and research. Students are advised that this is a minimum expectation and that a faculty member may require a greater time commitment. It is imperative that students discuss these expectations and the evaluation criteria with a faculty member before registering for a directed study.

How does a student enroll in a directed study course?

When a student determines an area of interest for intensive study, they should meet with the faculty member working in that area to learn about the directed study opportunities available. If and when an agreement is made between the student and faculty member, the student may register for the directed study course. Prior to beginning a directed study, the student should have a clear understanding of the time commitment, objectives, evaluation criteria, and expectations of the experience.

Examples of directed study courses in the curriculum: Directed studies are available in medicinal chemistry, pharmaceutics, pharmacology, clinical pharmacy, and social and administrative pharmacy.

How is an exception to this policy made?

Exceptions to the above policies related to maximum number of directed study credit can be requested by a student, in writing, through either the chair of the Department of Pharmacy Practice or chair of the Department of Pharmaceutical Sciences.