Pharmacy

Faculty

College of Pharmacy
Dean
Paul S. Cady, PhD
Associate Dean
Catherine Cashmore, PharmD
Assistant Dean
Thomas Wadsworth, PharmD
Assistant Dean
Kevin Cleveland, PharmD
Assistant Dean
Tracy Pettinger, PharmD

Pharmacy Practice and Administrative Sciences
Chair and Associate Professor:
Owens
Professors:
Cady, Culbertson, Erramouspe, Force, Madaras-Kelly, Mason, Oliphant, Rhodes
Associate Professors:
Cashmore, Cleveland, Gould, Liday
Clinical Associate Professors:
Bautista, Hefflinger, Pettinger, Wadsworth
Clinical Assistant Professors:
Biddle, Boyle, Carr, Casperson, Eroschenko, Hoover, Ivie, McKay
Visiting Research Professor:
Holmes
Adjunct Faculty:
Johnston, Baker, Barcelon, Mancini
Emeriti:
Adamcik, Galizia, Hurley, Jue, Lott, Sharp

Department of Biomedical and Pharmaceutical Sciences
Chair and Professor:
Culbertson
Professors:
Dodson, Lai
Assistant Professors:
Bastian, Pashikanti, Xu
Visiting Assistant Professors:
Awale, Myers
Emeriti:
Daniels, Fontenelle, Isaacson
Adjunct Faculty:
Furilla, Kator, Paredes, Shaver

College of Pharmacy

The Doctor of Pharmacy degree focuses on improving clinical outcomes and improving quality of life. The mission of the College of Pharmacy is to develop competent and caring pharmacists who advance healthcare and positively impact the profession through innovative education, service, patient-centered care, scientific discovery and development.

Accreditation

The Doctor of Pharmacy program is accredited by the Accreditation Council for Pharmacy Education (https://www.acpe-accredit.org) (ACPE).

Professional Standards

Students enrolled in the programs of the College of Pharmacy are expected to endorse professional standards by subscribing to the Oath of a Pharmacist. Students are also expected to abide by the American Pharmacists Association Code of Ethics for Pharmacists.

Progression Requirements

Students accepted into the professional PharmD program of the College of Pharmacy will be permitted to progress to the next semester in the professional curriculum only when all of the required courses and assessment activities have been successfully completed. Successful completion is defined to mean that a grade point average of C (2.0) or better must be maintained in required professional courses, as well as required courses outside the College. Any student receiving a grade of D in a required or elective course must successfully remediate that course per the College's Academic Remediation Plan. Students will be allowed to remediate a maximum of 2 courses per academic year, not to exceed a total of 3 courses in the first three didactic years of the program.

A student who intends to take a required Idaho State University pharmacy course at another institution must receive written permission from the Associate Dean of the ISU College of Pharmacy. This permission must be received prior to enrolling in the course.

Experiential Curriculum

Students must complete a specified number of hours of Introductory Pharmacy Practice Experiences (IPPE), Advanced Pharmacy Practice Experiences, (APPE) and Inter-professional Education (IPE). IPPE must involve practice experiences in community and institutional pharmacy settings as well as supervised direct patient care responsibilities. Forty-two (42) weeks of the fourth year of the Doctor of Pharmacy curriculum are spent in Advanced Pharmacy Practice Experiences (APPE). This requirement assures that the student becomes competent at applying information and concepts learned in the classroom to the practice of pharmacy. Practice sites are assigned by the College. Decentralization of off-campus programs is a commitment the College has made to provide students with the best possible educational experiences. Students should clearly understand that they may be required to complete at least part of their last year at a remote site. Since patient care is a continuous activity, some off-campus experiences are conducted outside the traditional work day (shift work). Personal expenses including travel, food, and lodging while completing off-campus experiences are the student’s responsibility.

Pharmacy Extern Registration

All students are required to be licensed externs during all phases of the clinical program. A background check is required prior to extern registration. An additional extern registration is required in other states in which a student does any portion of his or her clinical program (except for Public Health Service sites).

Graduation Requirements

All students graduating from Idaho State University with a Doctor of Pharmacy degree are expected to complete the General Education Requirements (http://coursescat.isu.edu/undergraduate/academicinformation/generaleducation) as described for the Bachelor of Science degree.

To be eligible for graduation in pharmacy, a student must have earned an average GPA of 2.0 or better on all credits applied toward the minimum graduation requirements of the curriculum. He or she also must have earned an average GPA
of 2.0 or better for all required pharmacy courses applied toward graduation. A minimum of 227 semester credits is required for graduation with the Doctor of Pharmacy degree.

Students are responsible for meeting degree requirements in proper sequence. Frequent consultation between student and faculty advisor is encouraged.

Licensure

For graduation with the Doctor of Pharmacy degree, students are required to complete a program of 1,740 hours of structured practical experiences in pharmacy practice environments administered by the College. Successful completion of the clinical program/externship required for the Doctor of Pharmacy degree will satisfy all of the practical experience requirements for licensure in Idaho and Alaska.

Following completion of all requirements, candidates must pass the North American Pharmacist Licensure Examination (NAPLEX) and the Multistate Pharmacy Jurisprudence Examination (MPJE) to obtain licensure to practice pharmacy in Idaho. If a student plans to practice pharmacy in states other than Idaho or Alaska, he or she must meet the specific licensing requirements of each state.

Advanced Pharmacy Practice Experience (APPE) Descriptions

Ambulatory Care - Integration of basic pharmacy-related concepts to patient care as a member of an interdisciplinary health care team in the ambulatory care setting.

Advanced Community - Emphasizes the distributive, communicative and managerial aspects of community pharmacy practice. For this experience, students are assigned to selected community pharmacy preceptors.

Drug Information - Structured experience in the practical aspects of the provision of drug information, critical analysis of the medical literature and medical writing.

Geriatrics - Application of pharmaceutical knowledge and skills in the care of geriatric patients and long-term care.

Advanced Institutional - Emphasizes the distributive, communicative and managerial aspects of hospital pharmacy practice. For this experience, students are assigned to selected hospital pharmacy preceptors.

Medicine - This experience is designed to integrate the knowledge from previous didactic courses in pharmacology, clinical chemistry and pathophysiology for application encountered in general medicine practice.

Mental Health - Application of pharmacotherapeutics to a general psychiatry practice.

Nuclear Pharmacy - Provides practical experience in the compounding and clinical use of radiopharmaceuticals.

Pediatrics - Practical experience in monitoring drug therapy for institutionalized and ambulatory pediatric and neonatal patients.

Research - Provides experience in the conduct of research in the pharmaceutical sciences.

Admission to the Doctor of Pharmacy Program

Application

Apply online at http://pharmacy.isu.edu

Admission Criteria

The recommended high school background for students planning to enter the preprofessional program at Idaho State University includes four units of mathematics and three units of natural science (biology, chemistry, and physics).

The preprofessional curriculum (with the exception of biochemistry) must be completed by the end of spring term of the year the applicant is applying for admission. The faculty encourages applicants to have a broad background in the arts, humanities and social sciences, as well as in the biological and physical sciences. Students should be competent in using word processing, spreadsheet and presentation software.

Applicants are strongly encouraged to obtain pharmacy experience prior to applying for admission to the Doctor of Pharmacy program. Pharmacy experience can be gained through shadowing, volunteering, or working in a paid position within a pharmacy.

To apply to the College of Pharmacy, a student must have a minimum cumulative grade point average (GPA) of 2.5 in all previous college academic courses. Admission is competitive; in recent classes, successful applicants had a cumulative GPA in excess of 3.0 with a class average of 3.6. Fulfillment of the specific requirements does not ensure admission to the Doctor of Pharmacy program. Idaho and Alaska residents are given preference.

Pre-Pharmacy Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1101</td>
<td>Biology I and Biology I Lab</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 1101L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 2235</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 2235L</td>
<td>General Microbiology Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 3301</td>
<td>Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 3301L</td>
<td>Anatomy and Physiology Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 3302</td>
<td>Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 3302L</td>
<td>Anatomy and Physiology Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 4432</td>
<td>Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 1111</td>
<td>General Chemistry I and General Chemistry I Lab</td>
<td>5</td>
</tr>
<tr>
<td>&amp; 1111L</td>
<td>(Partially satisfies General Education Objective 5)</td>
<td></td>
</tr>
<tr>
<td>CHEM 1112</td>
<td>General Chemistry II and General Chemistry II Lab</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 1112L</td>
<td>(Partially satisfies General Education Objective 5)</td>
<td></td>
</tr>
<tr>
<td>MATH 1153</td>
<td>Introduction to Statistics (Satisfies General Education Objective 3)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1160</td>
<td>Applied Calculus (Satisfies General Education Objective 3)</td>
<td>3</td>
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<tr>
<td>CHEM 3301</td>
<td>Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 3303</td>
<td>Organic Chemistry Laboratory I</td>
<td></td>
</tr>
<tr>
<td>CHEM 3302</td>
<td>Organic Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 3304</td>
<td>Organic Chemistry Laboratory II</td>
<td></td>
</tr>
<tr>
<td>PHYS 1111</td>
<td>General Physics (Partially satisfies General Education Objective 5)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 2201</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
</tbody>
</table>
or ECON 2202  Principles of Microeconomics

<table>
<thead>
<tr>
<th>Each of the 2 courses</th>
<th>Principles of Microeconomics</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1101</td>
<td>English Composition (Partially satisfies General Education Objective 1)</td>
</tr>
<tr>
<td>or ENGL 1101P</td>
<td>English Composition Plus</td>
</tr>
<tr>
<td>Electives</td>
<td>2</td>
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General Education Requirements

<table>
<thead>
<tr>
<th>COMM 1101</th>
<th>Principles of Speech (Satisfies General Education Objective 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1102</td>
<td>Critical Reading and Writing (Partially satisfies General Education Objective 1)</td>
</tr>
</tbody>
</table>

Other General Education requirements for the Bachelor of Science degree

3 of the 15 credits must be in Economics either:

<table>
<thead>
<tr>
<th>Each of the 2 courses</th>
<th>Partially satisfy General Education Objective 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 2201</td>
<td>Principles of Macroeconomics</td>
</tr>
<tr>
<td>or ECON 2202</td>
<td>Principles of Microeconomics</td>
</tr>
</tbody>
</table>

Additional Recommended Elective

<table>
<thead>
<tr>
<th>PHYS 1112</th>
<th>General Physics II (Partially satisfies General Education Objective 5)</th>
</tr>
</thead>
</table>

Total Hours 77

New students are admitted to the professional program of the college only in the fall semester of each year. All students must be CPR/AED for health care providers and first-aid certified and demonstrate immunization compliance prior to entering the first professional year. A criminal background check will be required.

Application Procedure

Admission to the Doctor of Pharmacy program requires a separate application in addition to the one for the university’s general admission. All application materials must be received by February 1.

Application materials include:

1. College of Pharmacy application and a $55 nonrefundable application fee;
2. Official transcripts of all previous college course work, including detailed evaluation of all international coursework;
3. Three letters of recommendation, one of which must be from a pharmacist.
4. Pharmacy College Admissions Test (PCAT) score.

Evaluation of Students for Admission

Admission to the College of Pharmacy is limited to approximately 95 seats per class. Historically, there have been more applicants than available positions. This requires the faculty to select from among the applicants those who will have the best opportunity to complete the curriculum and have productive professional lives. An invitation to schedule an on-campus interview is based upon the student’s academic ability and other required components of the pharmacy school application.

Students with international coursework to be considered with their applications must submit an official detailed evaluation report from an institution that is a member of the National Association of Credential Services Incorporated (NACSI).

International students must meet Idaho State University’s admission requirements for international students, which may be found at www.isu.edu/iso/admission.

Upon completion of interviews, applicants are placed into one of three categories:

1. admission,
2. reserve for possible admission pending available positions, or
3. no admission.

As positions become available, students in the reserve admission category will be notified of their selection for admission.

Admission Under Special Circumstances

Transfer from Other Schools of Pharmacy

Students wishing to transfer from another college of pharmacy are considered competitive with prepharmacy students and must present the following materials to the Associate Dean of the College of Pharmacy:

1. A letter from the Dean of the College of Pharmacy previously attended certifying the program the student was matriculated in and status as to good academic standing;
2. An official transcript(s) showing that the prepharmacy requirements of Idaho State University have been completed and any pharmacy courses completed thus far;
3. A letter to the Associate Dean of the College of Pharmacy requesting evaluation of class standing.

Admission to Joint PharmD/MBA Program

Interested student applicants may be admitted to the MBA program by the end of the second professional year of the PharmD curriculum. Awarding of the MBA in this joint program requires successful completion of the PharmD degree. Students must meet regular admission requirements for the MBA program, except that they are required to have completed the equivalent of an undergraduate degree at the time of admission. Applicants must request the College of Pharmacy to certify to the Graduate School that they have completed 120 hours of course work and that those 120 hours are equivalent to an undergraduate degree.

Doctor of Pharmacy

Curricular Philosophy

We view the curriculum as a tool to develop professionals who assume responsibility for their own learning and who are committed to the advancement of pharmacy practice. The primary curricular goal is the development of a strong foundational knowledge in the biomedical, pharmaceutical and clinical sciences that inculcates a drug-related problem-solving process specific to pharmacy and fosters an evidenced-based approach to optimizing pharmacotherapy and patient health outcomes. We embrace diversity in innovative teaching methods through sound instructional design and encourage the integration of active learning, and multiple curricular and co-curricular opportunities for leadership and professional development. Because it is a dynamic work in progress, we continue to experiment, assess, revise, and innovate within our curriculum to graduate highly competent practitioners.

Professional Curriculum

The professional curriculum requires four years of study. The first three years are a mix of academic courses and practice experiences. The fourth year is comprised of 42 weeks of clinical experiences.

The Doctor of Pharmacy degree can be completed in Pocatello or Meridian, Idaho or in Anchorage, Alaska. Students may complete their fourth year at our
clinical sites in Idaho (Meridian, Pocatello, Coeur d’Alene), at our experiential sites in the Anchorage, Alaska region, or in Reno, Nevada.

The first professional year provides a foundation in the basic and pharmaceutical sciences that includes physiology, biochemistry, pharmacology and pharmaceutics. Other courses provide a foundation for professional development that includes topics on ethics, law, drug information, research design, patient care, and the health care system.

Courses and clinical experiences in the second and third professional years build on accrued knowledge and skills. The curriculum centers on an integrated, organ-system approach to the therapeutic management of disease. Additional courses provide insight into the human relation aspects of pharmacy, dosage form design, pharmacy management and physical assessment. A series of case studies courses, designed to enhance the student’s knowledge base and problem-solving skills while focusing on the application of knowledge to specific patient cases, spans the first three years.

The last 42 weeks, or the fourth professional year, is devoted to full-time clinical experience in various pharmacy practice environments. Students will complete six-week experiences in various areas of practice. Students will also have the option of selecting an elective in an area of interest.

Given the length of the final year of the PharmD program, students will begin practice experiences in mid-May after completing their third academic year in the professional program and will continue throughout the ensuing twelve (12) months.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHAR 9911</td>
<td>Introductory Pharmacy Practice Experience I</td>
<td>1</td>
</tr>
<tr>
<td>PHAR 9921</td>
<td>Biological Basis of Drug Actions I</td>
<td>4</td>
</tr>
<tr>
<td>PHAR 9924</td>
<td>Physiochemical Basis of Drug Action</td>
<td>3</td>
</tr>
<tr>
<td>PHAR 9931</td>
<td>Health Care I</td>
<td>3</td>
</tr>
<tr>
<td>PHAR 9941 &amp; 9941L</td>
<td>Introduction to Pharmacy Practice and Literature I with Lab and Pharmacy Practice and Literature I Lab</td>
<td>4</td>
</tr>
<tr>
<td>PHAR 9949 &amp; 9949R</td>
<td>Human Physiology I and Human Physiology I Recitation</td>
<td>4</td>
</tr>
<tr>
<td>PHAR 9905</td>
<td>Introduction to Clinical Problem Solving</td>
<td>2</td>
</tr>
<tr>
<td>PHAR 9912</td>
<td>Introductory Pharmacy Practice Experience II</td>
<td>1</td>
</tr>
<tr>
<td>PHAR 9922</td>
<td>Biological Basis of Drug Actions II</td>
<td>5</td>
</tr>
<tr>
<td>PHAR 9923</td>
<td>Portfolio I</td>
<td>0</td>
</tr>
<tr>
<td>PHAR 9926 &amp; 9926R</td>
<td>Basic Pharmacokinetics and Calculations and Basic Pharmacokinetics and Calculations Recitation</td>
<td>4</td>
</tr>
<tr>
<td>PHAR 9942</td>
<td>Introduction to Pharmacy Practice and Literature II</td>
<td>3</td>
</tr>
<tr>
<td>PHAR 9956 &amp; 9956R</td>
<td>Human Physiology II and Human Physiology II Recitation</td>
<td>4</td>
</tr>
<tr>
<td>PHAR 9906</td>
<td>Case Studies With Pharmacotherapy Lab I</td>
<td>2</td>
</tr>
<tr>
<td>PHAR 9927 &amp; 9927L</td>
<td>Dosage Form Design and Compounding with Lab and Dosage Form Design and Compounding Lab</td>
<td>4</td>
</tr>
<tr>
<td>PHAR 9961</td>
<td>Pharmacotherapy I</td>
<td>2-5</td>
</tr>
<tr>
<td></td>
<td>Pharmacotherapy II</td>
<td>2-5</td>
</tr>
<tr>
<td>PHAR 9907</td>
<td>Case Studies with Pharmacotherapy Lab II</td>
<td>2</td>
</tr>
<tr>
<td>PHAR 9913</td>
<td>Introductory Pharmacy Practice Experience III</td>
<td>1</td>
</tr>
<tr>
<td>PHAR 9933</td>
<td>Portfolio II</td>
<td>0</td>
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<tr>
<td>PHAR 9944 &amp; 9944L</td>
<td>Health Care II and Health Care II Lab</td>
<td>4</td>
</tr>
<tr>
<td>PHAR 9963</td>
<td>Pharmacotherapy III</td>
<td>2-5</td>
</tr>
<tr>
<td>PHAR 9964</td>
<td>Pharmacotherapy IV</td>
<td>2-5</td>
</tr>
<tr>
<td>PHAR 9965</td>
<td>Pharmacotherapy V</td>
<td>2-5</td>
</tr>
<tr>
<td>PHAR 9966</td>
<td>Pharmacotherapy VI</td>
<td>2-5</td>
</tr>
<tr>
<td>PHAR 9908</td>
<td>Case Studies with Pharmacotherapy Lab III</td>
<td>2</td>
</tr>
<tr>
<td>PHAR 9945 &amp; 9945L</td>
<td>Health Care III and Health Care III Lab</td>
<td>4</td>
</tr>
<tr>
<td>PHAR 9967</td>
<td>Pharmacotherapy VII</td>
<td>2-5</td>
</tr>
<tr>
<td>PHAR 9968</td>
<td>Pharmacotherapy VIII</td>
<td>2-5</td>
</tr>
<tr>
<td>PHAR 9914</td>
<td>Introductory Pharmacy Practice Experience IV</td>
<td>1</td>
</tr>
<tr>
<td>PHAR 9943</td>
<td>Portfolio III</td>
<td>1</td>
</tr>
<tr>
<td>PHAR 9948</td>
<td>Pharmacy Law</td>
<td>2</td>
</tr>
<tr>
<td>PHAR 9952</td>
<td>Pharmacotherapy Lab IV</td>
<td>1</td>
</tr>
<tr>
<td>PHAR 9969</td>
<td>Pharmacotherapy IX</td>
<td>2-5</td>
</tr>
<tr>
<td>PHAR 9970</td>
<td>Pharmacotherapy X</td>
<td>2-5</td>
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<tr>
<td>PHAR 9971 &amp; 9971R</td>
<td>Capstone Pharmacy and Capstone Recitation</td>
<td>2-5</td>
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<tr>
<td>PHAR 9981</td>
<td>Advanced Pharmacy Practice Experience (Students will take 49 credits of PHAR 9981)</td>
<td>7</td>
</tr>
<tr>
<td>PHAR 9982</td>
<td>Professional Student Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

Electives (may be taken in any semester.) 6

**Joint Doctor of Pharmacy/Master of Business Administration**

The College of Business and College of Pharmacy at Idaho State University offer a joint PharmD/MBA program for students interested in earning both degrees. Students enrolled in the PharmD program may earn an MBA degree with approximately one summer and one year of additional course work.

The program is closely aligned with the PharmD curriculum with the following changes and requirements:

MBA 6613, MBA 6614, MBA 6615, and MBA 6616

These courses will satisfy six hours of electives required for the PharmD curriculum.

In addition, the completion of MBA 6612 (Human Behavior in Organizations) will substitute for the pharmacy management component of the Health Care sequence in the PharmD curriculum.

- During the two years of prepharmacy course work, the student should take:
  - ECON 2201 Principles of Macroeconomics (Partially satisfies General Education Objective 6)
The minimum didactic courses students will be required to complete are as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDNT 9905</td>
<td>Introduction to Clinical Problem Solving</td>
<td>1</td>
</tr>
<tr>
<td>PDNT 9918</td>
<td>Drug Literature Evaluation and Statistics</td>
<td>2</td>
</tr>
<tr>
<td>PDNT 9938</td>
<td>Drug and Medical Informatics</td>
<td>1</td>
</tr>
<tr>
<td>PDNT 9961</td>
<td>Pharmacotherapy I</td>
<td>2-4</td>
</tr>
<tr>
<td>PDNT 9962</td>
<td>Pharmacotherapy II</td>
<td>2-4</td>
</tr>
<tr>
<td>PDNT 9963</td>
<td>Pharmacotherapy III</td>
<td>2-4</td>
</tr>
<tr>
<td>PDNT 9964</td>
<td>Pharmacotherapy IV</td>
<td>2-4</td>
</tr>
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<td>PDNT 9965</td>
<td>Pharmacotherapy V</td>
<td>2-4</td>
</tr>
<tr>
<td>PDNT 9966</td>
<td>Pharmacotherapy VI</td>
<td>2-4</td>
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<tr>
<td>PDNT 9967</td>
<td>Pharmacotherapy VII</td>
<td>2-4</td>
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<td>Pharmacotherapy VIII</td>
<td>2-4</td>
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<td>PDNT 9969</td>
<td>Pharmacotherapy IX</td>
<td>2-4</td>
</tr>
<tr>
<td>PDNT 9970</td>
<td>Pharmacotherapy X</td>
<td>2-4</td>
</tr>
<tr>
<td>PDNT 9971</td>
<td>Pharmacotherapy XI Capstone with recitation</td>
<td>2-4</td>
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</tbody>
</table>

**Total Hours:** 26-48

In addition to these didactic courses, students will be required to complete 18 weeks of advanced practical experiences (PDNT 9981). These include:

<table>
<thead>
<tr>
<th>Experience Type</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulatory Care</td>
<td>6 weeks</td>
</tr>
<tr>
<td>Medicine</td>
<td>6 weeks</td>
</tr>
<tr>
<td>Pharmaceutical Care 1</td>
<td>6 weeks</td>
</tr>
<tr>
<td>OR</td>
<td>6 weeks</td>
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</tbody>
</table>

**TOTAL:** 18 weeks

1 The student may choose one 6-week experience or Pharmaceutical Care in a specialty area such as (but not limited to) Pediatrics, Geriatrics, Mental Health, Drug Information, Infectious Disease, and Transplant Therapeutics. While most advanced practice experiences constitute established pharmacy specialties, the Pharmaceutical Care option offers the student the unique opportunity to implement an aspect of pharmaceutical care at their site of employment. Thus, both the employer and the student benefit directly from this educational experience.

The College permits waivers of one Advanced Pharmacy Practice Experience (APPE) based upon experience. If a student has extensive experience in one area, then a portfolio of patient write-ups may be submitted. If approved, this portfolio may replace one 6-week APPE.

**Minor in Pharmaceutical Sciences**

The minor in Pharmaceutical science helps students to prepare for careers in biomedical research and/or pharmaceutical industry.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSCI 2205</td>
<td>Drugs in Society</td>
<td>2</td>
</tr>
<tr>
<td>PSCI 3301</td>
<td>Introduction to Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>PSCI 3353</td>
<td>Introduction to Methods in Pharmaceutical Sciences</td>
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<tr>
<td>PSCI 4438</td>
<td>Pharmaceutical Science Research</td>
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In addition, the student must take a minimum of 9 additional elective credits from the list below of elective courses.

**Total Hours:** 18

**Elective courses**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>PSCI 3308</td>
<td>Drug Discovery</td>
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<tr>
<td>PSCI 3368</td>
<td>Introduction to Toxicology</td>
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Doctor of Pharmacy Graduation Requirements

First Professional Year (P-1) Curriculum

<table>
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<th>Fall Hours</th>
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<td>PHAR 9941 &amp; 9941L</td>
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<td>PHAR 9949 &amp; 9949R</td>
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Total Hours: 38

1 The requirement for PHAR 9911 is fulfilled for students who provide evidence of completion of online coursework as well as externship in a licensed or public health pharmacy which has been approved by the College of Pharmacy, the State Board of Pharmacy that has authority over the pharmacy and which was supervised by a licensed preceptor. Students must be enrolled in PHAR 9911 and have completed identified components of the course prior to obtaining extern requirements.

Second Professional Year (P-2) Curriculum

<table>
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<td>PHAR 9966</td>
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10-16 15-27

Total Hours: 25-43

Third Professional Year (P-3) Curriculum

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<tr>
<td>PHAR 9971 &amp; 9971R</td>
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</table>

10-16 11-20

Total Hours: 21-36

Electives

Electives (may be taken in any semester) | 6
Total Hours | 6

Fourth Professional Year (P-4) Curriculum

Full Calendar Year

<table>
<thead>
<tr>
<th></th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tr>
<td>PHAR 9981</td>
<td>Advanced Pharmacy Practice Experience (49 total credits)</td>
<td>7</td>
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</table>
The following experiences are taken as PHAR 9981 Advanced Pharmacy Practice Experiences (APPE):
- Ambulatory Care - 6 weeks
- Advanced Community - 6 weeks
- Advanced Institutional - 6 weeks
- Medicine - 6 weeks
- Pharmaceutical Care Emphasis - 12 weeks (Students are assigned two experiences, each 6 weeks in length, from an approved list of specialty pharmacy practice sites providing a high level of pharmaceutical care. A maximum of 12 weeks of experience is allowed in any specialty practice area.)
- Elective - 6 weeks

TOTAL: 42 weeks

Total Hours: 8

BioMed and Pharmacy Sci Courses

**PSCI 2205 Drugs in Society:** 2 semester hours.
Survey of the response of people to drugs and chemicals. This course is for non-pharmacy majors. F, S

**PSCI 3301 Introduction to Pharmacology:** 3 semester hours.
Overview of basic pharmacological principles and drug classes emphasizing organ systems and mechanisms of action. PREREQ: BIOL 1102, CHEM 1112, and CHEM 1112L. F

**PSCI 3308 Drug Discovery:** 2 semester hours.
Overview of the new drug discovery process including drug screening and the development of targeted therapies. PREREQ: PSCI 3301 or permission of instructor. S

**PSCI 3318 Basic and Applied Pharmacology for Physical Therapists:** 2 semester hours.
Introduction to the basic concepts of pharmacology. Discussion of pharmacologic therapy of problems affecting the musculoskeletal and connective tissues, including pain management. PREREQ: Admitted to Physical Therapy program. S

**PSCI 3353 Introduction to Methods in Pharmaceutical Sciences:** 2 semester hours.
Review of in vitro and in vivo methodology for the study of various aspects of pharmaceutical sciences. PREREQ: BIOL 1102, CHEM 1112, and CHEM 1112L. S

**PSCI 3368 Introduction to Toxicology:** 3 semester hours.
Review of environmental and clinical poisons with emphasis on mechanisms of toxicity, causes, detection and treatment. PREREQ: PSCI 3301 or permission of instructor. F

**PSCI 4401 Drug Abuse:** 2 semester hours.
A discussion of pharmacological and societal aspects of drugs of abuse. PREREQ: PSCI 3301 or permission of instructor. S

**PSCI 4402 Immunopharmacology:** 2 semester hours.
Examination of drugs affecting the immune system. PREREQ: PSCI 3301 or permission of instructor. S

**PSCI 4403 Infectious Diseases and Natural Products:** 3 semester hours.
Review of antimicrobial drugs including antibiotics, antifungal and antiviral drugs. Review of pharmacology and medicinal chemistry of drugs derived from environmental sources. PREREQ: PSCI 3301 or permission of instructor. S

**PSCI 4404 Pulmonary and Cardiac Pharmacology:** 3 semester hours.
Review of the pulmonary and cardiovascular systems including major drug classes affecting these systems. PREREQ: PSCI 3301. F

**PSCI 4405 Behavioral Pharmacology:** 2 semester hours.
Review of drugs effecting behavioral processes including emotion, learning, memory, and cognition. PREREQ: PSCI 3301. Permission of instructor. S

**PSCI 4406 Introduction to Endocrinology:** 2 semester hours.
Review of the endocrine systems and drugs used for endocrine based disorders. PREREQ: PSCI 3301 or permission of instructor. S

**PSCI 4407 Pharmacogenomics:** 2 semester hours.
Review of contemporary genetic approaches in the understanding of disease and the development of pharmacological agents to treat disease. PREREQ: PSCI 3301 or permission of instructor. S

**PSCI 4408 Medicinal Chemistry:** 3 semester hours.
A study of the general chemistry, chemical properties and relationships between chemical structures and pharmacological activities of organic and inorganic medicinal agents PREREQ: PSCI 3301 or permission of instructor. F

**PSCI 4430 Psychopharmacology:** 3 semester hours.
This course will cover the mechanisms of action of psychoactive drugs, including drugs used in the treatment of psychopathological disorders and drugs of abuse. PREREQ: Permission of instructor. F

**PSCI 4431 Cancer Biology:** 3 semester hours.
Study of growth control, carcinogenesis, receptors, oncogenes, signal transduction pathways in cancer, metastasis, angiogenesis, invasion and tumor markers. PREREQ: Permission of instructor. F

**PSCI 4432 Anti-Cancer Drugs:** 3 semester hours.
Introduction to conventional chemotherapeutic drugs, novel chemotherapeutic drugs in clinical trials and cancer drug discovery. PREREQ: Permission of instructor. F

**PSCI 4433 Physical Pharmaceutics:** 3 semester hours.
Illustrates the basic concepts of physical pharmaceutics, including physiocochemical and biopharmaceutical principles applicable to formulation design, drug disposition and calculations. PREREQ: Permission of instructor. S

**PSCI 4434 Pharmacokinetics:** 3 semester hours.
Illustrates the principles of pharmacokinetics and dosing regimen design. PREREQ: Permission of instructor. F

**PSCI 4435 Drug Delivery Systems:** 3 semester hours.
Illustrates principles, processes, and techniques applied to drug delivery systems, preparation, use and assessment of pharmaceutical dosage forms and emphasizes formulation design, dose regimens, and specific compounding techniques. PREREQ: Permission of instructor. S

**PSCI 4436 Special Topics in Oncology:** 1 semester hour.
Study of current topics in cancer research and novel approaches to understand and treat cancer. PREREQ: Permission of instructor. S

**PSCI 4437 Nuclear Pharmacy:** 2 semester hours.
Basic principles of radiation physics, preparation of radiopharmaceuticals, operator safety, quality control, laboratory design, radiation monitoring equipment, clinical aspects, therapeutic and diagnostic applications of radiopharmaceuticals and diagnostic agents in pharmacy practice. PREREQ: Permission of instructor. F

**PSCI 4438 Pharmaceutical Science Research:** 2 semester hours.
Hands on research experience under the direction of pharmaceutical science faculty including the completion of experiments and analyses of data. May be repeated up to 4 times. PREREQ: Permission of instructor. F, S
PSCI 4439 Drug Delivery in the 21st Century: 2 semester hours.
State-of-the-art information on the science and technology of novel drug delivery systems, controlled release formulations and pharmaceutical proteins, vaccines and anti-sense drugs. PREREQ: Permission of instructor. F

PSCI 4440 Fundamentals of Nanoscience: 3 semester hours.
Introduction to the fundamental properties of nanomaterials. Emphasis on the application of nanomaterials in biological systems and their impact on society, and understanding nanomaterials for their future in medicine. PREREQ: Permission of instructor. F

PSCI 4441 Diabetes for Health Sciences: 2 semester hours.
Discussion of diabetes: types, development, monitoring and patient related issues. Topics include basic science and patient applications. Discussions based on student interest and background. PREREQ: Permission of instructor. S

PSCI 4455 Medicinal Chemistry: 3 semester hours.
A study of the general chemistry, chemical properties and relationships between chemical structures and pharmacological activities of organic and inorganic medicinal agents. PREREQ: Permission of instructor. F

PSCI 4457 Clinical Chemistry: 2 semester hours.
The influence of disease states on the results of laboratory diagnostic procedures; the effects of drug therapy on diagnostic tests. PREREQ: Second year professional status in Pharm. D. program. F

PSCI 4462 Neuropharmacology: 3 semester hours.
The molecular basis of drug action in the central nervous system including nerve excitation, molecular properties of ion channels, neuropharmacological methods, pharmacology of ethanol and the mechanisms in tolerance and physical dependence. PREREQ: PSCI 3301 or permission of instructor. S

PSCI 4480 Health Issues of Drug Abuse: 2 semester hours.
In-depth discussion of pharmacological and societal aspects of drug abuse, including the risk for harm from both legal and illegal substances. Emphasis on treatment options. D

PSCI 4482 Special Topics in Pharmaceutical Sciences: 1-3 semester hours.
An examination of selected topics in the pharmaceutical sciences. May be repeated up to 4 times. PREREQ: Permission of instructor. F, S

PSCI 4499 Experimental Course: 1-6 semester hours.
This is an experimental course. The course title and number of credits are announced in the class schedule by the scheduling department. Experimental courses may be offered no more than three times with the same title and content.

PSCI 9937 Professional Student Seminar in Pharmaceutical Sciences: 1 semester hour.
Review of current research and literature in the fields of pharmacy. Oral and written reports are required. May be repeated. Restricted to Pharm.D. program. S

PSCI 9938 Independent Problems in Pharmaceutical Sciences: 1-4 semester hours.
Advanced students are assigned special laboratory studies on the basis of interest and previous preparation. May be repeated. Restricted to PHARM.D. program. F, S

PSCI 9992 Topics in Pharmaceutical Sciences: 1-4 semester hours.
An examination of selected topics in pharmaceutical sciences. Restricted to PHARM.D. program. D

Non-Traditional PharmD Courses

PDNT 9905 Introduction to Clinical Problem Solving: 1 semester hour.
An integrated case study format emphasizing the development of quality assurance concepts, physical assessment skills, and clinical problem-solving abilities related to the diagnosis, resolution and prevention of drug-related problems. PREREQ: Enrollment in the Nontraditional Pharm.D. program. F, S, Su

PDNT 9918 Drug Literature Evaluation and Statistics: 2 semester hours.
The fundamentals of experimental design, implementation and data analysis pertinent to pharmaceutical clinical investigations. PREREQ: Enrollment in the Nontraditional Pharm.D. program. F, S, Su

PDNT 9938 Drug and Medical Informatics: 1 semester hour.
Advanced course in retrieving, analyzing, and evaluating medication-related information from the literature. PREREQ: Enrollment in the Nontraditional Pharm.D. program. F, S, Su

PDNT 9961 Pharmacotherapy I: 2-4 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on the appropriate selection/monitoring of drug therapy and patient counseling. PREREQ: Enrollment in the Nontraditional Pharm.D. program. F, S, Su

PDNT 9962 Pharmacotherapy II: 2-4 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on the appropriate selection/monitoring of drug therapy and patient counseling. PREREQ: Enrollment in the Nontraditional Pharm.D. program. F, S, Su

PDNT 9963 Pharmacotherapy III: 2-4 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on the appropriate selection/monitoring of drug therapy and patient counseling. PREREQ: Enrollment in the Nontraditional Pharm.D. program. F, S, Su

PDNT 9964 Pharmacotherapy IV: 2-4 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on the appropriate selection/monitoring of drug therapy and patient counseling. PREREQ: Enrollment in the Nontraditional Pharm.D. program. F, S, Su

PDNT 9965 Pharmacotherapy V: 2-4 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on the appropriate selection/monitoring of drug therapy and patient counseling. PREREQ: Enrollment in the Nontraditional Pharm.D. program. F, S, Su

PDNT 9966 Pharmacotherapy VI: 2-4 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on the appropriate selection/monitoring of drug therapy and patient counseling. PREREQ: Enrollment in the Nontraditional Pharm.D. program. F, S, Su

PDNT 9967 Pharmacotherapy VII: 2-4 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on the appropriate selection/monitoring of drug therapy and patient counseling. PREREQ: Enrollment in the Nontraditional Pharm.D. program. F, S, Su

PDNT 9968 Pharmacotherapy VIII: 2-4 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on the appropriate selection/monitoring of drug therapy and patient counseling. PREREQ: Enrollment in the Nontraditional Pharm.D. program. F, S, Su

PDNT 9969 Pharmacotherapy IX: 2-4 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on the appropriate selection/monitoring of drug therapy and patient counseling. PREREQ: Enrollment in the Nontraditional Pharm.D. program. F, S, Su
**Pharmacy Practice Courses**

**PPRA 3314 Basic and Applied Pharmacology for Dental Hygiene: 2 semester hours.**
Basic pharmacology and therapeutic uses of selected drug groups. PREREQ: BIOL 3301 and BIOL 3302. Restricted to Dental Hygiene major. S

**PPRA 3315 Pharmacology for Nursing: 4 semester hours.**
Overview of the pharmacologic actions and therapeutic implications of the major classes of drugs. S

**PPRA 3335 Smoking Cessation: 1 semester hour.**
Knowledge and skills necessary to provide comprehensive tobacco cessation counseling to patients who use tobacco. D

**PPRA 3341 Topics in Drug Utilization Review: 1-2 semester hours.**
Provides additional clinical experience, knowledge and skills necessary to provide population-based therapeutic monitoring and appropriate drug use. PREREQ: Permission of instructor. F, S

**PPRA 3345 Pharmacy and Therapeutics Formulary: 1 semester hour.**
Examination of selected drug classes with the goal of choosing individual agents for mock formulary inclusion. Emphasis on therapeutic variances, available dosage forms and pharmaco economic considerations, among other parameters, will drive the selection of individual agent(s) within the selected drug class. D

**PPRA 4425 Introduction to Traditional Chinese Medicine: 2 semester hours.**
A survey course covering the philosophical basis of traditional Chinese medicine, diagnostic techniques and modalities of treatment. PREREQ: Permission of instructor. S

**PPRA 4428 Diet Alternatives and Nutrition: 2 semester hours.**
Overview of macro-and micronutrients, diet aids and supplements, and current dieting trends and their impact on the body and medications. Emphasis on nutrition and exercise in the overall health of a patient. Evidence-based evaluation of current diet trends. D

**PPRA 4440 Pharmacoconomics: 2 semester hours.**
Introduction to the principles and methods for the economic evaluation of medicines such as cost-effectiveness and cost-utility analysis as well as patient-centered assessments of health-related quality of life and patient preferences or utilities. D

**PPRA 4459 Externship in Pharmacy Practice: 1 semester hour.**
200 hours of practical experience in a pharmacy practice environment. Graded S/U. S

**PPRA 4491 Topical Seminar in Pharmacy Practice: 1-4 semester hours.**
Examination of selected topics in Pharmacy Practice and Pharmacy Administration. May be repeated. PREREQ: Permission of instructor. D

**PPRA 4499 Experimental Course: 1-3 semester hours.**

**PPRA 9907 Complementary and Natural Medicine: 2 semester hours.**
Introduction to safety and efficacy of methods and products used in treating patients outside of modern medicine. Restricted to PHARM.D. program. S

**PPRA 9913 Personal Financial Management for Pharmacists: 2 semester hours.**
Principles of personal financial management as applied to the graduating pharmacist. F, S

**PPRA 9915 Financial Management of the Community Pharmacy: 2 semester hours.**
Principles of financial management as applied to community pharmacy practice. PREREQ: PHAR 9945 and PHAR 9945L. S

**PPRA 9925 Residency Readiness Elective: 2 semester hours.**
This course is designed to improve the success rate of students applying for postgraduate pharmacy residency positions. Course topics include the residency application process, interviewing skills, and building one's curriculum vitae. Current pharmacy residents and residency program directors will be invited to participate in panel discussions and provide insight. Students are also required to develop and complete a research project. PREREQ: Second professional year only. S

**PPRA 9928 Women's Health: 2 semester hours.**
This course will provide an overview of the most recent information regarding gender-based medicine, an understanding of gender-based biology, and an enhanced knowledge concerning the prevention and management of various diseases and conditions specific to women. S

**PPRA 9935 Veterinary Medicine: 2 semester hours.**
The goal of this elective is to help students develop a basic knowledge of veterinary therapeutics and related pharmacy/medication issues. Students will become competent providers of basic veterinary medicine topics to provide adequate services to veterinarians, animals, and caregivers. S

**PPRA 9988 Independent Problems in Pharmacy Practice: 1-2 semester hours.**
Advanced students are assigned special studies on the basis of interest and previous preparation. May be repeated. Restricted to PHARM.D. program. F, S

**Pharmacy Courses**

**PHAR 4499 Experimental Course: 1-6 semester hours.**
This course is not described in the catalog. The course title and number of credits are announced in the class schedule by the scheduling department. Experimental courses may be offered no more than three times.

**PHAR 9905 Introduction to Clinical Problem Solving: 2 semester hours.**
An introduction to the deductive, problem-based clinical reasoning process for identifying, preventing, and resolving drug-related problems. PREREQ: First professional year. S

**PHAR 9906 Case Studies With Pharmacotherapy Lab I: 2 semester hours.**
Clinical problem solving related to patient cases and integration of skills and knowledge necessary for providing patient-centered pharmaceutical care. PREREQ: Second professional year. F

**PHAR 9907 Case Studies With Pharmacotherapy Lab II: 2 semester hours.**
Clinical problem solving related to patient cases and integration of skills and knowledge necessary for providing patient-centered pharmaceutical care. PREREQ: PHAR 9906. S
PHAR 9908 Case Studies with Pharmacotherapy Lab III: 2 semester hours. Clinical problem solving related to patient cases and integration of skills and knowledge necessary for providing patient-centered pharmaceutical care. PREREQ: PHAR 9907. F

PHAR 9910 First Year Recitation: 0 semester hours. Scheduled time to attend professional seminars, course reviews and exams. May be repeated. COREQ: First Professional Year. D

PHAR 9911 Introductory Pharmacy Practice Experience I: 1 semester hour. Self paced didactic and competency-based experiential training in an approved pharmacy practice setting to be initiated during the summer prior to the fall of the first professional year. D

PHAR 9912 Introductory Pharmacy Practice Experience II: 1 semester hour. A competency-based experiential training in an approved community and institutional pharmacy practice setting to be completed prior to the beginning of the second professional year. PREREQ: PHAR 9911. COREQ: First professional year. S

PHAR 9913 Introductory Pharmacy Practice Experience III: 1 semester hour. Forty hours of competency-based experiential training in an approved pharmacy practice setting or voluntary service activity to be completed prior to the start of the third professional year. PREREQ: PHAR 9912. S

PHAR 9914 Introductory Pharmacy Practice Experience IV: 1 semester hour. Forty hours of competency-based experiential training in an approved pharmacy practice setting or voluntary service activity to be completed prior to the start of the fourth professional year. PREREQ: PHAR 9913. S

PHAR 9920 Second Year Recitation: 0 semester hours. Scheduled time to attend professional seminars, course reviews and exams. May be repeated. COREQ: Second Professional Year. D

PHAR 9921 Biological Basis of Drug Actions I: 4 semester hours. Basic concepts in pharmacology. PREREQ: First professional year. F

PHAR 9922 Biological Basis of Drug Actions II: 5 semester hours. Basic concepts in Pharmacology. PREREQ: First professional year. S

PHAR 9923 Portfolio I: 0 semester hours. This course will provide a forum to demonstrate and document progressive achievement of desired program competencies throughout the didactic curriculum and introductory practice experiences. Student self-assessment and reflection on educational outcomes will be emphasized. Graded S/U. PREREQ: First professional year. S

PHAR 9924 Physicochemical Basis of Drug Action: 3 semester hours. Concepts of physical and chemical properties of drugs and how these properties affect absorption, distribution, metabolism, excretion, and pharmacological actions. PREREQ: First professional year. COREQ: BIOL 4449. F

PHAR 9926 Basic Pharmacokinetics and Calculations: 3 semester hours. This course explores the fundamental principles of physical pharmacy, the mathematics associated with drug dispensing and compounding, and the pharmacokinetic principles related to ADME processes, the design and customization of therapeutic dosage regimens, and dosage individualization. COREQ: PHAR 9926R. S


PHAR 9927 Dosage Form Design and Compounding with Lab: 4 semester hours. Principles, processes and techniques applied to design of therapeutic systems, including preparation, use and assessment of pharmaceutical dosage forms. Includes three hours of laboratory each week. PREREQ: PHAR 9926. F

PHAR 9927L Dosage Form Design and Compounding Lab: 0 semester hours. Principles, processes and techniques applied to design of therapeutic systems, including preparation, use and assessment of pharmaceutical dosage forms. COREQ: PHAR 9927. S

PHAR 9930 Third Year Recitation: 0 semester hours. Scheduled time to attend professional seminars, course reviews and exams. May be repeated. COREQ: Third Professional Year. D

PHAR 9931 Health Care I: 3 semester hours. Health care systems, social and behavioral aspects of pharmacy practice, and management. PREREQ: First professional year. F, S, Su

PHAR 9933 Portfolio II: 0 semester hours. This course will provide a forum to demonstrate and document progressive achievement of desired program competencies throughout the didactic curriculum and introductory practice experiences. Student self-assessment and reflection on educational outcomes will be emphasized. Graded S/U. PREREQ: Second professional year. S

PHAR 9941 Introduction to Pharmacy Practice and Literature I with Lab: 4 semester hours. Introduction and socialization to the pharmacy profession. A general overview of the health care system, the role of pharmacy in health care, pharmacy law, experimental design, analysis, and career pathways within the profession. PREREQ: First professional year. COREQ: PHAR 9941L. F

PHAR 9941L Pharmacy Practice and Literature I Lab: 0 semester hours. Experiences in the retrieval, interpretation and analysis of literature and other sources of medical information. Design and development of research projects suitable for publication. COREQ: PHAR 9941. F

PHAR 9942 Introduction to Pharmacy Practice and Literature II: 3 semester hours. Introduction and socialization to the profession of pharmacy. A general overview of the health care system, the role of pharmacy in health care, pharmacy law, experimental design, analysis and career pathways within the profession. PREREQ: PHAR 9941. S

PHAR 9943 Portfolio III: 1 semester hour. This course will provide a forum to demonstrate and document progressive achievement of desired program competencies throughout the didactic curriculum and introductory practice experiences. Student self-assessment and reflection on educational outcomes will be emphasized. Graded S/U. PREREQ: Third professional year. S

PHAR 9944 Health Care II: 4 semester hours. Health care systems, social and behavioral aspects of pharmacy practice, and management. COREQ: PHAR 9944L. F, S, Su

PHAR 9944L Health Care II Lab: 0 semester hours. Communication skills, multicultural awareness, and application of quality assurance methods. Application of principles of pharmacoeconomic and humanistic outcomes research to the evaluation of patient-centered care and the marketing and delivery of medication therapy management. COREQ: PHAR 9944. F, S, Su

PHAR 9945 Health Care III: 4 semester hours. Health care systems, social and behavioral aspects of pharmacy practice, and management. COREQ: PHAR 9945L. F, S, Su

PHAR 9945L Health Care III Lab: 0 semester hours. Communication skills, multicultural awareness, and application of quality assurance methods. Application of principles of pharmacoeconomic and humanistic outcomes research to the evaluation of patient-centered care and the marketing and delivery of medication therapy management. COREQ: PHAR 9945. F, S, Su
PHAR 9948 Pharmacy Law: 2 semester hours.
The study of federal and state statutes, regulations and court decisions which control the practice of pharmacy and drug distribution; and an introduction to civil liability in pharmacy practice. PREREQ: Third professional year. S

PHAR 9949 Human Physiology I: 4 semester hours.
First of a two semester sequence. Physiology of the nervous, muscular, and circulatory systems. Cross-listed as BIOL 4449. F

PHAR 9949R Human Physiology I Recitation: 0 semester hours.
Recitation for PHAR 9949. F

PHAR 9952 Pharmacotherapy Lab IV: 1 semester hour.
Integration of skills and knowledge necessary for providing pharmaceutical care. Emphasizes patient assessment and therapeutic monitoring and management. PREREQ: Third professional year. Graded S/U. D

PHAR 9956 Human Physiology II: 4 semester hours.
Physiology of the respiratory, renal, gastrointestinal, and endocrine systems. Includes studies of acid-base balance. Cross-listed as BIOL 4456. PREREQ: BIOL 4449 or PHAR 9949. S

PHAR 9956R Human Physiology II Recitation: 0 semester hours.
Recitation for PHAR 9956. S

PHAR 9961 Pharmacotherapy I: 2-5 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on the appropriate selection/monitoring of drug therapy and patient counseling. PREREQ: Second professional year. D

PHAR 9962 Pharmacotherapy II: 2-5 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on appropriate drug selection, therapeutic drug monitoring, and patient counseling. PREREQ: Second professional year. D

PHAR 9963 Pharmacotherapy III: 2-5 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on appropriate drug selection, therapeutic drug monitoring, and patient counseling. PREREQ: Second professional year. D

PHAR 9964 Pharmacotherapy IV: 2-5 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on appropriate drug selection, therapeutic drug monitoring, and patient counseling. PREREQ: Second professional year. D

PHAR 9965 Pharmacotherapy V: 2-5 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on appropriate drug selection, therapeutic drug monitoring and patient counseling. PREREQ: Second professional year. D

PHAR 9966 Pharmacotherapy VI: 2-5 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on appropriate drug selection, therapeutic drug monitoring, and patient counseling. PREREQ: Third professional year. D

PHAR 9967 Pharmacotherapy VII: 2-5 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on appropriate drug selection, therapeutic drug monitoring, and patient counseling. PREREQ: Third professional year. D

PHAR 9968 Pharmacotherapy VIII: 2-5 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on appropriate drug selection, therapeutic drug monitoring, and patient counseling. PREREQ: Third professional year. D

PHAR 9969 Pharmacotherapy IX: 2-5 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on appropriate drug selection, therapeutic drug monitoring, and patient counseling. PREREQ: Third professional year. D

PHAR 9970 Pharmacotherapy X: 2-5 semester hours.
An organ-system approach to the therapeutic management of selected disease states with an emphasis on appropriate drug selection, therapeutic drug monitoring and patient counseling. PREREQ: Third professional year. D

PHAR 9971 Capstone Pharmacy: 2-5 semester hours.
Selective review of the pharmacy curriculum with emphasis on the optimization of complex pharmacotherapy regimens, medication therapy management, and therapeutic issues surrounding common disease states. Includes small group discussions, journal clubs, self-directed learning and interactive teaching methods. PREREQ: Third professional year. D

PHAR 9971R Capstone Recitation: 0 semester hours.
Recitation for PHAR 9971 Capstone Pharmacotherapeutics. D

PHAR 9981 Advanced Pharmacy Practice Experience: 7 semester hours.
Students are assigned to pharmacy practice sites including community, institutional, and clinical settings for experiential training. Requires reflection and presentation of cases for discussion. May be repeated up to 7 times. PREREQ: Fourth professional year status. F, S, Su

PHAR 9982 Professional Student Seminar: 1 semester hour.
Development of a relevant therapeutic topic including the review, analysis, and oral presentation of all appropriate medical and scientific literature. Graded S/U. PREREQ: Fourth professional year status. F, S, Su