Doctor of Pharmacy, Pharm.D.

Requirements

The Doctor of Pharmacy (Pharm.D.) program provides professional education in a number of areas, including pharmaceutical technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical socioeconomics, pharmacotherapy, patient care, clinical and hospital pharmacy, and aspects of biotechnology. Graduates of the program are qualified to take the Iowa Board of Pharmacy examination that is required for licensure as a pharmacist.

The program requires four years of full-time pharmacy study preceded by at least two years of pre-pharmacy study in the College of Liberal Arts and Sciences at the University of Iowa or at an accredited community or liberal arts college in the United States or Canada. During pre-pharmacy study, students complete the prerequisites for admission to the Pharm.D. program (see Admission [p. 3] in this section of the Catalog for a list of prerequisite coursework). If possible, students should complete all 20 s.h. of their general education work before they enter the Pharm.D. program. Courses in moral reasoning or ethics, communication, computer science, business, behavioral and social sciences, and the humanities are recommended. Courses in physical education skills, applied music, and studio art do not count toward the general education electives requirement. Students must maintain a pharmacy and cumulative g.p.a. of at least 2.00.

For rules and regulations concerning academic probation, pass/nonpass, credit by examination, maximum schedule, second-grade-only option, waiver or substitution of courses, cancellation of registration, and drop date, see Student Resources on the College of Pharmacy website.

The College of Pharmacy provides students with the highest possible quality in the professional experiential program. Faculty and adjunct faculty serve as preceptors, providing introductory and advanced practice experience at institutions and pharmacies in Iowa, nationwide, and around the world.

Professional Curriculum

The Pharm.D. degree requires the coursework listed below, including at least 6 s.h. of professional electives. In addition, students must complete all prerequisites for admission to the Pharm.D. program, including a minimum of 12 s.h. of general education courses chosen from behavioral, social, humanistic, and business disciplines (see Admission [p. 3] in this section of the Catalog). They also must complete an additional 8 s.h. of general education coursework either before or after admission to the Pharm.D. program.

First Year

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PHAR:8130</td>
<td>Foundations of Pharmacy Practice I</td>
<td>4</td>
</tr>
<tr>
<td>PHAR:8131</td>
<td>Engagement: Professional Skills and Values</td>
<td>2</td>
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Spring Semester

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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>PHAR:8133</td>
<td>Introductory Pharmacy Practice Experience Career Exploration (unless taken spring semester)</td>
<td>1</td>
</tr>
<tr>
<td>PHAR:8134</td>
<td>Foundations of Health Services</td>
<td>3</td>
</tr>
<tr>
<td>PHAR:8135</td>
<td>Health Information Retrieval and Informatics</td>
<td>3</td>
</tr>
<tr>
<td>PHAR:8136</td>
<td>Foundations of Pharmaceutical Sciences</td>
<td>6</td>
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<tr>
<td>PHAR:8152</td>
<td>Fundamentals of Compounding</td>
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Second Professional Year

Second Professional Year

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<tbody>
<tr>
<td>PHAR:8207</td>
<td>Introductory Pharmacy Practice Experiences Community (may be taken in a different session)</td>
<td>3</td>
</tr>
<tr>
<td>PHAR:8250</td>
<td>Applications of Pharmacy Practice I</td>
<td>1</td>
</tr>
<tr>
<td>PHAR:8252</td>
<td>Integrated Pharmacotherapy: Musculoskeletal</td>
<td>4</td>
</tr>
<tr>
<td>PHAR:8253</td>
<td>Integrated Pharmacotherapy: Genitourinary and Reproductive</td>
<td>3</td>
</tr>
<tr>
<td>PHAR:8254</td>
<td>Integrated Pharmacotherapy: Endocrine</td>
<td>3</td>
</tr>
<tr>
<td>PHAR:8255</td>
<td>Discovery II: Design and Methods</td>
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Spring Semester

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<tbody>
<tr>
<td>PHAR:8202</td>
<td>Pharm.D. Learning Portfolio I</td>
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<tr>
<td>PHAR:8207</td>
<td>Introductory Pharmacy Practice Experiences Community (may be taken in a different session)</td>
<td>3</td>
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<tr>
<td>PHAR:8260</td>
<td>Integrated Pharmacotherapy: Cardiovascular</td>
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</table>
PHAR:8261 Integrated Pharmacotherapy: Neurology and Psychiatry 4
PHAR:8263 Integrated Pharmacotherapy: Infectious Diseases 4
PHAR:8264 Discovery III: Data Collection and Results 1
PHAR:8265 Applications of Pharmacy Practice II 1

Third Professional Year

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>PHAR:8301</td>
<td>Introductory Pharmacy Practice Experience Clinical</td>
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<tr>
<td>PHAR:8370</td>
<td>Integrated Pharmacotherapy: Respiratory and Allergy</td>
<td>3</td>
</tr>
<tr>
<td>PHAR:8371</td>
<td>Integrated Pharmacotherapy: Oncology and Hematology</td>
<td>3</td>
</tr>
<tr>
<td>PHAR:8372</td>
<td>Integrated Pharmacotherapy: Gastroenterology and Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>PHAR:8373</td>
<td>Integrated Pharmacotherapy: Renal, Fluids, and Electrolytes</td>
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</tr>
<tr>
<td>PHAR:8374</td>
<td>Applications of Pharmacy Practice III</td>
<td>1</td>
</tr>
<tr>
<td>PHAR:8375</td>
<td>Advanced Topics in Health Services</td>
<td>2</td>
</tr>
<tr>
<td>PHAR:8376</td>
<td>Discovery IV: Presentation of Results</td>
<td>1</td>
</tr>
<tr>
<td>PHAR:8132</td>
<td>Continuing Professional Development</td>
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</tr>
<tr>
<td>PHAR:8377</td>
<td>Integrated Pharmacotherapy: Capstone</td>
<td>4</td>
</tr>
<tr>
<td>PHAR:8378</td>
<td>Pharmacy Law and Ethics</td>
<td>2</td>
</tr>
<tr>
<td>PHAR:8379</td>
<td>Advanced Pharmacy Practice Experiences Preparation</td>
<td>1</td>
</tr>
</tbody>
</table>

One additional rotation numbered PHAR:9401 through PHAR:9433 may be taken

Third Year Spring Semester and Fourth Year: Advanced Pharmacy Practice Rotations

During the spring semester of the third year and the fourth year, students are required to complete nine or ten advanced pharmacy practice rotations. All students must complete the first four rotations listed below (24 s.h.); the remaining rotations may be selected by the student.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PHAR:9401</td>
<td>Ambulatory Care Rotation</td>
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</tr>
<tr>
<td>PHAR:9404</td>
<td>Community Clinical Rotation</td>
<td>6</td>
</tr>
<tr>
<td>PHAR:9410</td>
<td>Hospital Pharmacy Rotation</td>
<td>6</td>
</tr>
<tr>
<td>PHAR:9413</td>
<td>Acute Care Medicine Rotation</td>
<td>6</td>
</tr>
</tbody>
</table>

Four of these:

PHAR:9402 Elective Ambulatory Care Rotation 6
PHAR:9403 Elective Nuclear Pharmacy Rotation 6
PHAR:9406 Elective: Drug Information Rotation 6
PHAR:9407 Elective Family Medicine Rotation 6
PHAR:9408 Elective Hematology/Oncology Rotation 6
PHAR:9409 Elective Home Health Care Rotation 6
PHAR:9411 Elective Long Term Care Rotation 6
PHAR:9412 Elective Managed Care Rotation 6
PHAR:9415 Elective: Pediatrics Rotation 6
PHAR:9416 Elective: Pharmacy Rotation 6
PHAR:9417 Elective Psychiatry Rotation 6
PHAR:9418 Elective Research Rotation 6
PHAR:9419 Elective: Surgery Rotation 6
PHAR:9420 Elective Pharmacy Practice Underserved Population Rotation 6
PHAR:9422 Elective: Compounding/Complementary Alternative Medicine Rotation 6
PHAR:9423 Elective: Critical Care Medicine Rotation 6
PHAR:9424 Elective Emergency Medicine Rotation 6
PHAR:9425 Elective Hospital Management Rotation 6
PHAR:9426 Elective Infectious Disease Rotation 6
PHAR:9427 Elective Medication Use Evaluation Rotation 6
PHAR:9428 Elective Pharmacy Industry Rotation 6
PHAR:9429 Elective: Pharmacy Regulatory Rotation 6
PHAR:9430 Elective: Professional Association Rotation 6
PHAR:9431 Elective: Veterinary Pharmacy Rotation 6
PHAR:9432 Elective Community Rotation 6
PHAR:9433 Elective Academic Rotation 6
PHAR:9440 Elective Virtual Rotation 6

Professional Electives

Pharm.D. students must complete at least 6 s.h. of professional electives, which they may choose from the following list.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>PHAR:4146</td>
<td>Drug Disposition and Pharmacokinetics</td>
<td>2</td>
</tr>
</tbody>
</table>
Combined Programs

Pharm.D./M.P.H.

The College of Pharmacy and the College of Public Health offer the combined Doctor of Pharmacy/Master of Public Health program. The combined program requires 42 s.h. of graduate credit in addition to the requirements of the Pharm.D. degree. Students who complete the program are granted both degrees.

The Pharm.D./M.P.H. program helps students develop expertise in public health related to pharmacotherapy, health promotion, disease prevention, and medication safety. Its graduates may work in areas of interest common to pharmacy and public health, such as spread and treatment of disease, community health, and immunology; bioterrorism, terrorism, and preparedness; genetics; insurance; managed care; family and juvenile health; and protection of special populations.

Employment opportunities are available in hospitals and clinics and with health care providers; private practice; insurance and managed care organizations; local, county, state, and federal government; public health governmental agencies; and colleges and universities.

Separate admission to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the combined degree program.

See the Master of Public Health, M.P.H. in the Catalog to learn about curriculum and admission requirements.

Pharm.D./M.S. in Informatics (Health Informatics Subprogram)

The College of Pharmacy and the Graduate College offer the combined Doctor of Pharmacy/Master of Science in informatics with a health informatics subprogram. The combined degree program requires completion of 32 s.h. beyond the bachelor’s degree. Students who complete the program are granted both degrees.

The Pharm.D./M.S. program assists students to develop special expertise in information technology, including management of electronic health records, health information exchange standards, electronic prescribing, medication management, decision support, as well as other competencies. Graduates will be prepared for employment in industry or academic institutions with skills to address pharmacotherapy issues as well as information technology management.

Separate application to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the combined degree program. It is recommended that students apply to the Graduate College for admission to the M.S. program before entering the spring semester of their first year in the pharmacy program.

For information about the Master of Science degree, see the M.S. in informatics (Graduate College) in the Catalog.

Admission

Individuals apply to the Pharm.D. program using PharmCAS, the American Association of College of Pharmacy application service. Applicants also must submit a supplemental application, including the application fee, to the University of Iowa College of Pharmacy; see Doctor of Pharmacy on the
University of Iowa Graduate Admissions website for more information.

All application materials must be received by November 1 of the year before the applicant intends to enter the College of Pharmacy. Entry is for fall semester. All Pharm.D. applicants must take the Pharmacy College Admission Test (PCAT) before December 1 of the year before they wish to enter the College of Pharmacy in order to be considered by the admissions committee.

Applicants must complete the college-level work listed under ‘Prerequisites for Admission to the Pharm.D. Program’ below. They also must have an overall cumulative g.p.a. of at least 2.50 and must submit two letters of recommendation and a personal statement. Applicants considered for admission must have a personal interview; the college contacts applicants to arrange interview appointments.

Fulfillment of the admission requirements listed above does not ensure admission to the College of Pharmacy. The admissions committee considers applicants who meet these requirements and selects individuals who, in their judgment, are the best qualified for the study and practice of pharmacy.

Applicants who are accepted for admission are required to submit to a criminal background check and pay an admission acceptance fee. The fee is applied to tuition for the student’s first semester of enrollment in the college. The deposit is not refunded to applicants who do not enroll in the College of Pharmacy.

Entering health sciences students are required to have an annual tuberculin skin test (TST) and proof of immunization against mumps, measles and rubella (2 MMRs), tetanus, diphtheria and varicella before classes begin. The usual regimen of three doses of Hepatitis B vaccine and a Hepatitis B titre must be completed by the second semester of the first year. All students are required to have hospitalization and health insurance.

**Prerequisites for Admission to the Pharm.D. Program**

Applicants to the Pharm.D. program must have completed the following college-level work.

**Rhetoric:** 4 s.h. (RHET:1030 Rhetoric) or 6 s.h. of transfer credit in English composition and rhetoric and 3 s.h. in speech

**Biochemistry:** 3 s.h. (BIOC:3110 Biochemistry)

**General biology:** 8 s.h. (BIOL:1411 Foundations of Biology and BIOL:1412 Diversity of Form and Function)

**General chemistry:** 8 s.h. (CHEM:1110 Principles of Chemistry I and CHEM:1120 Principles of Chemistry II)

**Human anatomy:** 3 s.h. (ACB:3110 Principles of Human Anatomy)

**Human physiology:** 3 s.h. (HHP:3500 Human Physiology)

**Organic chemistry:** 6 s.h. (CHEM:2210 Organic Chemistry I and CHEM:2220 Organic Chemistry II)

**Mathematics:** 3-4 s.h. of a satisfactory differential and integral calculus course (MATH:1460 Calculus for the Biological Sciences)

**Microeconomics:** 3-4 s.h. (ECON:1100 Principles of Microeconomics)

**Physics:** one year of high school physics or one semester of college-level physics with a lab (PHYS:1400 Basic Physics)

**Statistics:** 3 s.h.

**General education electives:** a minimum of 12 s.h.

Courses in moral reasoning or ethics, communications, computer science, and business, behavioral and social sciences, and the humanities are accepted. Courses in physical education skills, applied music, and studio art do not count toward the general education requirement.

**Financial Support**

All second-, third-, and fourth-year pharmacy students are encouraged to apply for College of Pharmacy scholarships. Applications are available each April from the College of Pharmacy Graduate Program Office. Students complete a single application form in order to be considered for all scholarships. Award amounts vary. The Awards and Recognition Committee selects the best-qualified applicant for each scholarship.

**Steve and Teresa Berge Scholarship:** for a pharmacy student who is a U.S. citizen and has a g.p.a. of at least 3.00; experience doing volunteer work highly desirable.

**Albrecht/Winckler Scholarship:** for a deserving pharmacy student.

**Seymour M. Blaug Memorial Award:** for a pharmacy student with above-average academic achievement.

**Dennis and Bev Bousselot Scholarship:** life insurance gift bequest.

**Ilse O. Buckner Scholarship:** for a pharmacy student who maintains satisfactory academic progress; nonrenewable, financial need is considered.

**Burroughs-Wellcome Scholarship Fund:** for a student of the committee’s choice.

**David and James Carlson Scholarship:** for two pharmacy students interested in clinical or hospital practice; preference is given to students from north of U.S. Interstate 80 and west of U.S. Interstate 35 who show financial need.

**Class of 1970 Award:** qualifications vary.

**Class of 2009 Award:** qualifications vary.

**Jordan and Jana Cohen Doctor of Pharmacy Scholarship:** for a pharmacy student in good academic standing; based on merit and need; renewable.

**College of Pharmacy Executive Leadership Board Excellence Fund:** for the senior class president and/or qualifications vary.

**Vernon Conzemius Scholarship:** for a pharmacy student who demonstrates financial need; preference is given to students in the upper half of their class.

**John and Margo Daniel Scholarship:** preference is given to a student from Webster County, Iowa.

**Max Eggleston Scholarship:** for a student who has completed one year; preference is given to students from Iowa; based on financial need.

**Lori A. Grimes Memorial Scholarship:** based on financial need; renewable.

**Dick and Brenda Hartig Scholarship:** for a student who demonstrates financial need; preference is given to students from Dubuque, Waukon, Dyersville, and Iowa City, Iowa; and Galena and Stockton, Illinois.
Thomas D. Hill Scholarship: for a pharmacy student in good academic standing.

Janet Hinderliter Scholarship: for a P3 or P4 student with a g.p.a. of at least 3.00 and demonstrated involvement in campus and community affairs.

Frances T. and Charles Holub Memorial Award: for a third-year pharmacy student; financial need is considered; renewable once.

Iowa Pharmacy Foundation Scholarships: for selected pharmacy students who are residents of Iowa and who demonstrate outstanding academic ability; financial need is considered (Eggleston-Granberg Scholarship is awarded from this fund).

R.A. Kuever Scholarship Fund: for a pharmacy student from Iowa who is in good academic standing.

Ronald Madden Scholarship: for an Iowa high school graduate in good academic standing.

Charles J. Malecek Pharmacy Scholarship: for a student of the committee's choice.

Virgil R. McCutchan Memorial Scholarship: for a deserving pharmacy student.

J. Patrick McDonnel Scholarship: qualifications vary.

Carleton Mikkelsen Scholarship: for the top P4 student based on final P3 grade-point average; in case of a tie, the committee chooses the recipient.

Miller-Ruegnitz Scholarships: based on financial need; nonrenewable.

NACDS Scholarship: for a student interested in community pharmacy.

Petersen Linder Scholarship: for a pharmacy student in excellent academic standing who has outstanding leadership skills; based on financial need.

Pharmacists Mutual Scholarship: for a student of the committee's choice.

Pharmacy Student Aid Scholarship: for a student of the committee's choice.

Quad Cities Area Pharmacists Association Scholarships: for students who demonstrate financial need; preferably one student from Iowa and one from Illinois.

Robert E. and Barbara J. Rehal Family Scholarship: for a student who has interest in independent or community pharmacy; preferably from Sioux City, Iowa.

Sattler Family Scholarship: for a student of the committee's choice, alternates with the Carver College of Medicine.

Scherling Scholarship: for a student who demonstrates superior academic achievement in organic chemistry.

Hal Schimmelpfenning Scholarship Fund: for a pharmacy student from Sigourney, Iowa.

Schlumberger Scholarship: qualifications vary.

Chuck and Jacqueline Schwenke Scholarship: for a student of the committee's choice.

Gordon H. Sheffield Scholarship: for a P3 or P4 student from Iowa; preference is given to a student who demonstrates leadership and financial need.

Shutt Pharmacy Scholarship: preference is given to Iowa residents; based on financial need.

H. Curtis Snyder Award: for a pharmacy student in good standing.

Paul G. and Vivian Soderdahl: for a student of the committee's choice.

Wilber J. Teeters and the Teeters/Wahl Scholarships: for a pharmacy student who has completed at least one year in the college; financial need is considered.

Thomson Scholarship Fund in Memory of Rob Chabal: preference is given to a fourth-year student committed to community pharmacy practice.

John S. Thor (Nash) Scholarship Fund: for a pharmacy student in good standing; renewable.

Donald J. and Nancy L. Unash Scholarship: qualifications vary.

Colonel Thomas C. Veach Class of 1952 Scholarship Fund: preference is given to a student interested in compounding or industrial pharmacy.

Walgreens Diversity Scholarship: for a student who has made significant efforts toward raising awareness about matters of diversity that affect the pharmacy profession.

Jo H. and Robert A. Wiley Scholarship Fund: for a pharmacy student who is an Iowa native and shows financial need.

Louis C. Zopf Memorial Award: for a pharmacy student who is academically qualified; financial need is considered.

John D. Zuelke Scholarship: for a pharmacy student (preferably P3 or P4) from Wapello County, Iowa.

Career Advancement

The College of Pharmacy has had nearly a 100 percent placement rate for its graduates for many years. Pharmacists often choose to practice in a community pharmacy or a hospital setting. They hold positions in government, independent businesses, home health care, consulting, clinical pharmacy, managed care facilities, higher education, or the pharmaceutical industry.