

# College of Pharmacy and Health Sciences

## The Mission of the College

The College of Pharmacy and Health Sciences provides an intellectually stimulating learning environment with collaborative learning among students, faculty and staff. Graduates are liberally educated professionals who are dedicated to serving their patients, their profession and their communities. The college emphasizes excellence and leadership in professional education, service and scholarship.

## The College's Vision Statement

The College of Pharmacy and Health Sciences will continue to be recognized for its innovation, demonstrating continuous quality improvement in teaching, scholarship and service, while boldly pursuing opportunities for breakthrough achievements within those same arenas. The college will uphold its tradition of preparing individuals to meet the expectations and challenges of health care practices, providing a balance between foundational scientific, socioeconomic and practice theories along with meaningful, exemplary practice opportunities. Further, the college will fulfill its obligation to advance the level of health care knowledge and practice through scholarly endeavors, incorporating the efforts of all who define its learning communities and embracing the scholarly functions of discovery, innovation, application and teaching.

The College of Pharmacy and Health Sciences offers the following programs:

DOCTOR OF PHARMACY (PHARM.D.)  
DOCTOR OF PHARMACY/MASTER OF BUSINESS ADMINISTRATION (M.B.A.) JOINT DEGREE PROGRAM  
DOCTOR OF PHARMACY/MASTER OF PUBLIC ADMINISTRATION (M.P.A.) JOINT DEGREE PROGRAM  
DOCTOR OF PHARMACY/LAW (J.D.) JOINT DEGREE PROGRAM  
BACHELOR OF SCIENCE IN PHARMACEUTICAL SCIENCES (NON-LICENSURE DEGREE)

The pharmacy program of the Drake University College of Pharmacy and Health Sciences is accredited by the Accreditation Council on Pharmacy Education and is a member of the American Association of Colleges of Pharmacy.

The Doctor of Pharmacy (Pharm.D.) degree program is a six-year program that prepares students for community or institutional practice, postgraduate education or the many other practice opportunities available to pharmacists. Students may be admitted to the two-year pre-pharmacy program direct from high school and, upon completion of established criteria, may enter the four-year professional program.

The College of Pharmacy and Health Sciences offers admission to transfer students at the professional program levels. Students who have completed approximately 60 semester hours, including two semesters of organic chemistry (with labs), calculus, computers, statistics and microbiology generally are considered for admission to the professional program.

A program leading to the Doctor of Pharmacy degree and Master of Business Administration degree is offered jointly by the College of Pharmacy and Health Sciences and the College of Business and Public Administration. These two colleges also offer a joint program to receive a Doctor of Pharmacy and a Master of Public Administration. In addition, a program leading to the Doctor of Pharmacy degree and Doctor of Jurisprudence degree is offered by the college and the Drake Law School. See the descriptions of these joint degree programs later in this section and contact the College of Pharmacy and Health Sciences for more information.

The Bachelor of Science in Pharmaceutical Sciences is a four-year program designed to prepare students for entry-level positions in the pharmaceutical industry, for advanced graduate study in the

pharmaceutical sciences and admission into other health science doctoral programs. The curriculum is structured so that students can gain a breadth and depth of education in the basic and pharmaceutical sciences. It is also possible for students within this degree program to complete areas of concentration in either pharmacology/molecular biology or in pharmaceuticals/chemistry. The capstone experience of this four-year program is a research project designed in conjunction with a faculty mentor. Also, opportunities exist for research internships with pharmaceutical companies and research laboratories.

### **The Faculty**

The College of Pharmacy and Health Sciences faculty at Drake University are competent and experienced teachers. The year in parentheses after the name indicates when each joined the college's faculty.

### **PROFESSORS**

- LARSON, LON N. (1991), Windsor Professor of Science, Professor of Pharmacy Administration. B.S., Drake University; M.S., Ph.D., University of Mississippi.
- MORROW, RICHARD J. (1972), Ellis and Nelle Levitt Professor of Pharmacology. B.S., University of Cincinnati; Ph.D., Indiana University.
- PANDIT, NITA K. (1991), Professor of Pharmaceutics. B.S., University of Bombay; M.S., Ph.D., University of Wisconsin.
- ROSPOND, RAYLENE M. (1997), Dean and Professor of Pharmacy Practice. B.S., Creighton University; Pharm.D., University of Texas-Austin.
- TORRY, RONALD (1998), Professor of Pharmacology. B.S., Western Illinois University; M.S., Ph.D., Southern Illinois University-Carbondale.

### **ASSOCIATE PROFESSORS**

- BELL, EDWARD (1989), Associate Professor of Pharmacy Practice, Pediatrics. B.S., Pharm.D., University of Maryland-Baltimore.
- CHESNUT, RENAE J. (1993), Associate Dean for Academic and Student Affairs and Associate Professor of Pharmacy Practice. B.S., M.B.A., Ed.D., Drake University.
- FINN, SIDNEY L. (1977), Associate Professor of Pharmaceutics. B.S., M.S., University of Wisconsin; Ph.D., North Dakota State University.
- JOHNSON, JUNE F. (1995), Director of Faculty and Site Development and Associate Professor of Pharmacy Practice, Ambulatory Care. B.S., State University of New York-Buffalo; Pharm.D., University of Utah.
- KRYPEL, LINDA (1988), Associate Professor of Pharmacy Practice. B.S., Pharm.D., Drake University.
- PHILLIPS, CHARLES R. (1993), Associate Professor of Pharmacy Administration. Pharm.D., University of Nebraska Medical Center; Ph.D., University of Oklahoma.
- ROVERS, JOHN P. (1991), Associate Professor of Pharmacy Practice. B.S., University of Toronto; B.S., Pharm.D., Massachusetts College of Pharmacy and Allied Health Sciences.
- SOLTIS, ROBERT P. (1992), Associate Professor of Pharmacology. B.S., Butler University; Ph.D., Indiana University.
- TICE, BRADLEY P. (1998), Associate Professor of Pharmacy Practice and Director of Corporate Development, Director of the Drake-American Drug Stores Community Care Laboratory. B.S., Pharm.D., University of Kansas.
- WALL, GEOFFREY (1999), Assistant Professor of Pharmacy Practice, Internal Medicine. B.S., University of Utah; Pharm.D., Idaho State University.

### **ASSISTANT PROFESSORS**

- ALMOAZEN, HASSAN (2003), Assistant Professor of Pharmaceutics. B.S., Damascus University; PhD., Long Island University.
- CLODFELTER, GREGORY (2000), Assistant Professor of Pharmacology. B.S., Butler University; Ph.D., University of Kentucky.
- DEWITT, JANE (2001), Assistant Professor of Pharmacy Administration. B.S., Drake University; Ph.D., University of Iowa.
- DIRKS, SANDRA J. (1994), Assistant Professor of Pharmacy Practice, Psychiatry. B.S., Drake University; Pharm.D., Creighton University.

FOUST, SHARON (2000), Assistant Professor of Pharmacy Practice, Internal Medicine. Pharm.D., University of Nebraska.

FORNOFF, ANISA (2003), Instructor of Pharmacy Practice, Ambulatory Care. Pharm.D., Drake University.

HAACK, SALLY (2004). Assistant Professor of Pharmacy Practice. Pharm.D., Ambulatory Care, Drake University.

JENSEN, LORI (2005). Assistant Professor of Pharmacy Practice, Ambulatory Care. Pharm.D., University of Iowa.

KOENIGSFELD, CARRIE S (1999), Assistant Professor of Pharmacy Practice, Ambulatory Care. Pharm.D., University of Iowa.

MAKI, ERIK (2005). Assistant Professor of Pharmacy Practice, Internal Medicine. Pharm.D., University of Iowa.

MCCLELLAN, RYAN (2005). Assistant Professor of Pharmacy Practice, Primary Care. B.S., Loras College, Pharm.D., Drake University.

MEYER, KRISTIN (2001), Assistant Professor of Pharmacy Practice, Geriatrics. Pharm.D., Drake University.

MILLER, MICHAEL (2004), Assistant Professor of Pharmacy Administration. B.S., University of Pittsburgh; M.S., University of Arizona; Dr.P.H., University of Pittsburgh.

SCHIRMER, LORI (2005). Assistant Professor of Pharmacy Practice, Critical Care/Nutrition. B.A. Maryville College; M.A. University of Texas-Austin; Pharm.D., University of Tennessee.

TICE, ANGELA L. (1998), Assistant Professor of Pharmacy Practice, Ambulatory Care. Pharm.D., University of Iowa.

WRENN, CRAIGE (2004), Assistant Professor of Pharmacology. B.S., Oglethorpe University; Ph.D., Vanderbilt University.

### **INSTRUCTORS**

JOHNSON, DIANE (2000), Instructor of Pharmacy Practice. B.S., Drake University.

SOLTIS, DENISE (2000), Director of Experiential Education and Instructor of Pharmacy Practice. B.S., Butler University.

### **EMERITI FACULTY**

BJORNSON, DARREL Associate Professor Emeritus of Pharmacy.

BRADY, LINDA H. Associate Professor Emerita of Nursing.

GRANBERG, C. BOYD, Dean and Professor Emeritus of Pharmacy.

LEVINE, PHILLIP J., Professor Emeritus of Pharmaceutics.

SELLERS, SANDRA L. Professor Emerita of Nursing.

### **PHARMACY**

The practice of pharmacy is an integral part of total health care. The pharmacist serves as a vital source of drug use information for other health care professionals and members of the community. The special knowledge of the pharmacist can maximize the effectiveness of disease treatment and minimize the possibility of adverse effects that could develop during drug therapy of diseases.

Pharmacy practice environments are diverse and challenging. While many graduates pursue careers in community and hospital pharmacy, others choose careers in the pharmaceutical industry, research, government service, consultant pharmacy or diverse professional specialties.

### **HISTORY**

The first college of pharmacy in Des Moines was the Iowa College of Pharmacy. It was organized in 1882. This college affiliated with Drake University in 1887 and operated as one of the colleges of the University until 1906 when it was discontinued.

The Highland Park College of Pharmacy was organized in Des Moines in 1889. Highland Park College, in 1918, changed its name to Des Moines University, with the college of pharmacy continuing as an integral part of the university.

In 1927, the faculty of the College of Pharmacy of Des Moines University organized an independent college of pharmacy, the Des Moines College of Pharmacy. This college operated as an independent institution from 1927 until 1939, when the Des Moines College of Pharmacy Corporation was dissolved and the college's staff and facilities became part of Drake University.

### **EDUCATIONAL GOALS AND OBJECTIVES OF THE PROFESSIONAL PROGRAM IN PHARMACY**

The purpose of the Pharmacy Professional Program is to provide the graduate with the relevant knowledge base, skills, attitudes, ethics and values to engage in the entry-level practice of pharmacy. The curriculum is designed to provide the graduate with competence in these areas:

- A. Problem-solving and decision-making. In order to provide pharmaceutical care, the pharmacist must have the skills of inquiry, abstract logical thinking and critical analysis to identify problems, make judgments and decisions based on available data or identify additional needed data.
- B. Management. Pharmaceutical care entails managing drug therapy, including developing and implementing care plans and measuring therapeutic outcomes. In addition, pharmacists manage personnel, supplies, practices and departments. The effective and efficient delivery of pharmaceutical care requires the effective and efficient management of a pharmacy practice.
- C. Lifelong learning. Practice is a learning experience. The pharmacist must be able to learn from problem-solving experiences. Pharmacists must acquire a continuing flow of new knowledge. Lifelong learning is dependent on the development of self-learning abilities and habits.
- D. Communicating and educating. The pharmacist must communicate with colleagues, other professionals and patients. Pharmacists, as members of society, communicate with other citizens about health. Pharmacists must have the basic knowledge, confidence, attitudes and skills to read, write, listen and speak effectively. Pharmacists must be able to deal effectively with dissent, being able to disagree articulately and persuasively about patients' therapies.
- E. Policy formulation and professional governance. Pharmacists must be able to take active roles in shaping policies, practices and future directions for the profession. Pharmacists must look beyond their immediate practice settings to the environment of pharmacy and the health care system. Pharmacists must be prepared to deal with issues of organization, financing, delivery, payment, access, quality and regulation of drugs and pharmacy services. Pharmacists must be aware of methods of shaping change in the profession through policy formation in the public and private sectors.
- F. Professionalism. Pharmacists must understand and accept their duties and responsibilities to patients, health care professionals and their profession. Pharmacists are expected to have developed value systems and ethical standards that guide their behavior. Pharmacists must have a sense of the obligation they owe their patients and their duty to ensure that obligation is fulfilled.

Upon graduation from the Drake University pharmacy program, the graduate also shall fulfill the outcomes of the Drake Curriculum, described in the front section of this catalog.

### **Admission Requirements**

Students may apply to the College of Pharmacy and Health Sciences and enter the pre-pharmacy program direct from high school and, upon completion of established criteria, may enter into the professional program or the Bachelor of Science in Pharmaceutical Sciences. Students may apply for progression into the professional program if the established criteria are not met. Students who have completed coursework at other institutions also may apply for admission through the Pharmacy Centralized Application Service (PharmCAS) at <http://www.pharmacas.org>. Admission of transfer students is highly competitive and the number of students admitted for any year depends on the space available.

Students who have successfully completed a minimum of 60 credit hours — including the courses listed earlier, eight hours of organic chemistry and other electives applicable to the pharmacy curriculum — may be considered for placement in the first year of the professional program.

### **Specific Regulations/Academic Requirements**

Pharmacy students should familiarize themselves with the General Information section of this catalog, which covers many regulations that affect all Drake University students. The College of Pharmacy and Health Sciences also has a number of specific regulations and requirements that must be met to progress through the pharmacy curriculum. Some of these are listed below; others are available in the Pharmacy Student Handbook on the pharmacy Web page: <http://www.pharmacy.drake.edu>.

Many pharmacy courses have prerequisite requirements. Admission to a course is denied if prerequisite courses have not been successfully completed. Therefore, deviations from the curriculum as it is structured require careful consideration. Course prerequisites may be found in the course descriptions, as well as the Pharmacy Student Handbook, both of which are available at <http://www.pharmacy.drake.edu>.

Pharmacy students may apply a maximum of nine hours of elective coursework on a credit/no credit basis toward graduation. Courses regularly graded on a credit/no credit basis are not included within the nine hours maximum. The student must have a minimum cumulative grade-point average of 2.75 before registering in a course on a credit/no credit basis.

Candidates qualifying for the degree must complete 208 credit hours and have at least a 2.00 cumulative grade-point average. The standard grading scale for pharmacy students enrolled in pharmacy-labeled courses is "A", "B", "C", "D" or "F". All courses in the pre-pharmacy curriculum and the first three years of the professional curriculum must be successfully completed before a student enrolls in fourth-year (final year) coursework. In addition, four core groups of pharmacy courses exist for students who entered prior to Fall 2004; a student must attain a 2.00 grade-point average in each core prior to entering rotations. Pharmacy students are permitted to retake a pharmacy-labeled course for a passing grade one time only. Failure of a pharmacy-labeled course twice is grounds for suspension from the pharmacy curriculum.

Students entering the professional program in Fall 2004 and after may not progress onto rotations unless a "C" or better is earned in each required course. Students are permitted to retake a pharmacy required course for a passing grade (2.0 grade-point or "C") one time only. Students who do not obtain a 2.0 (or "C") in a pharmacy course after two attempts will be suspended from the Pharm.D. program.

All fourth-year pharmacy students are required to complete 40 weeks of experiential rotations (Pharmacy 285) prior to graduation. During these experiential rotations, students apply pharmaceutical principles related to diagnosis, treatment and patient care; monitor drug utilization and drug therapy and interact with patients, physicians, nurses and other health care providers. Due to regulations at many of the experiential sites, the college will complete a criminal background check and drug screen prior to admission into the professional program and again prior to entering the experiential year. Students who have a history of a felony are referred to the State Board of Pharmacy where they plan to practice pharmacy to determine if their record would prohibit licensure. Experiential sites have the right to refuse to accept a student for rotations based on the results of the criminal background check even if the history would not prohibit licensure as a pharmacist. Students who have positive drug screens and will be entering rotations will be referred to the Chemical Dependency Policy.

Candidates for the Doctor of Pharmacy degree are required to be in residence in the College of Pharmacy and Health Sciences for at least the last 30 credit hours before becoming eligible for graduation. Credit earned by examination may not be counted toward fulfillment of the last 30 credit hours.

Pre-pharmacy and pharmacy students are assigned a pharmacy faculty member as their academic adviser. Faculty advisers help students

- Adapt to the college environment
- Assist in the development of the student's education plan by providing input and feedback

- Encourage discussions about the appropriateness of their chosen career track and the career options within the profession
- Assist in identification of opportunities for professional skill development and
- Make appropriate referrals to university student service offices when academic or personal difficulties arise.

The Academic and Student Affairs Office is responsible for coordinating the registration process, verifying appropriate registration of courses, approve educational plan waivers and transfer credit requests, update degree audits with regard to substitutions, waivers and transfer courses, answer student questions regarding registration, credit completion, course transfer process and study-abroad opportunities, serve as a resource for students in combined degree programs (M.B.A., M.P.A., Law) and coordinate and communicate opportunities for internship, study abroad, research and postgraduate study. The final responsibility for completion of graduation requirements, however, belongs to the student and, accordingly, each student should become familiar not only with the curriculum but also with the academic regulations of the college.

### The Pharm.D. Curriculum

The following is the curriculum for the pre-pharmacy and professional programs. Please note that courses in the professional program may change. Please view updates at <http://www.pharmacy.drake.edu>.

#### PRE-PHARMACY PROGRAM

##### First Year

|                             |                    | Credit hour |
|-----------------------------|--------------------|-------------|
| FALL                        |                    |             |
| BIO 011                     | Biology            | 4           |
| CHEM 001/3                  | Chemistry I/Lab    | 4           |
| FYS                         | First Year Seminar | 3           |
| IS 044                      | Information Tools  | 3           |
| PHAR 011                    | Deans Hour I       | <u>0.5</u>  |
| Semester Total Credit Hours |                    | 14.5        |

|                             |                                   | Credit hour |
|-----------------------------|-----------------------------------|-------------|
| SPRING                      |                                   |             |
| BIO 012                     | Biology                           | 4           |
| CHEM 002/4                  | Chemistry II and Lab              | 4           |
| ELEC                        | Drake Curriculum/General Elective | 3           |
| MATH 050                    | Calculus I                        | 4           |
| PHAR 031                    | Deans Hour II                     | <u>0.5</u>  |
| Semester Total Credit Hours |                                   | 15.5        |

##### Second Pre-professional Year

|                             |                                   | Credit hour |
|-----------------------------|-----------------------------------|-------------|
| FALL                        |                                   |             |
| CHEM 107/9                  | Organic Chemistry and Lab         | 4           |
| ELEC                        | Drake Curriculum/General Elective | 9           |
| ENG                         | Intensive Writing Elective        | 3           |
| PHAR 051                    | Deans Hour                        | <u>0.5</u>  |
| Semester Total Credit Hours |                                   | 16.5        |

|                             |                                   | Credit hour |
|-----------------------------|-----------------------------------|-------------|
| SPRING                      |                                   |             |
| BIO 095                     | Microbiology                      | 3           |
| CHEM 108/10                 | Organic Chemistry II and Lab      | 4           |
| ELEC                        | Drake Curriculum/General Elective | 3           |
| PHAR 071                    | Deans Hour IV                     | 0.5         |
| RHET 073                    | Public Speaking                   | 3           |
| STAT 060                    | Statistics                        | <u>3</u>    |
| Semester Total Credit Hours |                                   | 16.5        |

## PROFESSIONAL PROGRAM

### First Professional Year

|                             |   | Credit hour |
|-----------------------------|---|-------------|
| FALL                        |   |             |
| BIO 128                     | Physiology                                | 4           |
| ELEC                        | Electives                                 | 3           |
| PHAR 102                    | Drug Information Practicum                | 1           |
| PHAR 130                    | Biochemistry                              | 4           |
| PHAR 131                    | Intro to Pharm Science                    | 3           |
| PHAR 137                    | Integrated Pharmacy Practice Experience 1 | 0.5         |
| PHAR 161                    | Intro to Pharmaceutical Care              | <u>2</u>    |
| Semester Total Credit Hours |   | 17.5        |

|                             |   | Credit hour |
|-----------------------------|---|-------------|
| SPRING                      |   |             |
| ELEC                        | Electives                                 | 2           |
| PHAR 101                    | Communication Skills Practicum            | 1           |
| PHAR 103                    | Pharmacy Calculations                     | 2           |
| PHAR 132                    | Pathophysiology                           | 4           |
| PHAR 133                    | Principles of Drug Action I               | 5           |
| PHAR 138                    | Integrated Pharmacy Practice Experience 2 | 0.5         |
| PHAR 171                    | Social Behavioral Aspects of Pharm Care   | <u>3</u>    |
| Semester Total Credit Hours |   | 17.5        |

### Second Professional Year

|                             |   | Credit hour |
|-----------------------------|---|-------------|
| FALL                        |   |             |
| ELEC                        | Electives                                 | 4           |
| PHAR 121                    | Drug Distributions Systems Practicum      | 1           |
| PHAR 134                    | Principles of Drug Action II              | 5           |
| PHAR 140                    | Pharmaceutics I                           | 3           |
| PHAR 157                    | Integrated Pharmacy Practice Experience 3 | 1           |
| PHAR 172                    | Basic Quantitative Methods for Pharm Care | <u>3</u>    |
| Semester Total Credit Hours |   | 17          |

|                             |   | Credit hour |
|-----------------------------|---|-------------|
| SPRING                      |   |             |
| ELEC                        | Electives                                   | 3           |
| PHAR 135                    | Principles of Drug Action III               | 4           |
| PHAR 141                    | Pharmaceutics II                            | 3           |
| PHAR 142                    | Kinetics I                                  | 3           |
| PHAR 151                    | Delivery Systems/Sterile Products Practicum | 1           |
| PHAR 158                    | Integrated Pharmacy Practice Experience 4   | 1           |
| PHAR 173                    | Applied Quantitative Methods                | <u>3</u>    |
| Semester Total Credit Hours |   | 18          |

### Third Professional Year

|                             |   | Credit hour |
|-----------------------------|---|-------------|
| FALL                        |   |             |
| ELEC                        | Electives                                 | 4           |
| PHAR 143                    | Kinetics II                               | 2           |
| PHAR 174                    | Applied Social-Behavior Sci in Pharm Care | 3           |
| PHAR 177                    | Integrated Pharmacy Practice Experience 5 | 1           |
| PHAR 180                    | Patient Coun/Educating Patients Practicum | 2           |
| PHAR 190                    | Therapeutics I                            | <u>6</u>    |
| Semester Total Credit Hours |   | 18          |

|          |   | Credit hour |
|----------|---|-------------|
| SPRING   |   |             |
| ELEC     | Electives                                 | 2           |
| PHAR 162 | Pharmacy Law & Ethics                     | 3           |
| PHAR 169 | Nonprescription Therapies                 | 3           |
| PHAR 178 | Integrated Pharmacy Practice Experience 6 | 1           |
| PHAR 181 | Patient Assessment Practicum              | 2           |

|                             |                 |          |
|-----------------------------|-----------------|----------|
| PHAR 192                    | Therapeutics II | <u>6</u> |
| Semester Total Credit Hours |                 | 17       |

#### Fourth Professional Year

|                             |           |             |
|-----------------------------|-----------|-------------|
| FALL                        |           | Credit hour |
| PHAR 285                    | Rotations | <u>22</u>   |
| Semester Total Credit Hours |           | 22          |

|                             |           |             |
|-----------------------------|-----------|-------------|
| SPRING                      |           | Credit hour |
| PHAR 285                    | Rotations | <u>18</u>   |
| Semester Total Credit Hours |           | 18          |

Total Program Hours: 208

### **ELECTIVES**

Pharmacy majors must complete electives that enable them to fulfill the outcomes of the Drake Curriculum, described in the front section of this catalog along with enough electives to complete the required number of credits for graduation. Students may also use electives to pursue a second major, a minor or a concentration.

Electives also must include six credit hours of professional courses completed during the Professional Program.

The college currently offers a number of combined programs as described below and a Diabetes Concentration. For additional information, please see the Programs Of Study area at <http://www.spharmacy.drake.edu>.

#### **Pharmacy/M.B.A. Joint Degree Program**

Students may earn a Master's in Business Administration in conjunction with the Pharm.D. Students who pursue this combination have opportunities in management and administrative positions. This program requires a careful selection of prerequisite courses for the M.B.A. degree as electives in the pharmacy curriculum. Students begin at Drake in pharmacy and apply to the College of Business and Public Administration after completing the prerequisite courses. The combined degree program typically takes an extra semester to complete beyond the pharmacy degree, rather than an extra two years if the M.B.A. is completed after the Pharm.D.

#### **Pharmacy/M.P.A. Joint Degree Program**

Students may earn a Master's in Public Administration along with the Pharm.D. through a joint program established in cooperation with the College of Business and Public Administration. Students are admitted to the College of Pharmacy and Health Sciences and during their first professional year may seek admission to the M.P.A. program. Students who pursue this option have management and administrative opportunities in the public sector. As with the Pharm.D./M.B.A. option, students are typically able to complete the two degrees in one additional semester rather than an additional two years after graduation with the Pharm.D.

#### **Pharmacy/Law Joint Degree Program**

Students may elect to earn both a Bachelor of Science degree in pharmacy and a Doctor of Jurisprudence (law) degree in a joint degree program offered in cooperation with the Drake Law School. The program allows students to focus their education on legal and health care issues. Participating students are admitted first to the College of Pharmacy and Health Sciences. A student pursuing this program should plan to take the LSAT and formally apply to the Law School during the spring semester of the first professional year. Each student's schedule is tailored individually in consultation with the joint degree adviser with the goal of the student completing the equivalent of the first year of law school by the Pharm.D. graduation.

## **BACHELOR OF SCIENCE IN THE PHARMACEUTICAL SCIENCES PROGRAM**

The Bachelor of Science in Pharmaceutical Sciences (B.S.P.S.) is a four-year undergraduate degree program in the College of Pharmacy and Health Sciences. This program provides students with coursework and laboratory opportunities in the pharmaceutical sciences that allow them to develop highly sought-after skills that are applicable to work in research environments and required for success in graduate and medical degree programs. The learning goals and outcomes of the curriculum provide students with a strong interdisciplinary component that integrates the chemical and biological sciences for applications in the pharmaceutical sciences. The program also provides a background in the liberal arts that prepares students to be engaged citizens and reflective practitioners.

Students are required to complete the Drake Curriculum and take courses in biochemistry, pharmacology, pharmaceuticals and pharmacokinetics as well as electives in biology (physiology, cell and molecular biology), chemistry (organic chemistry, analytical chemistry, physical chemistry), physics and pharmaceutical sciences. Students in the junior year of the program participate in a discovery-based laboratory course that focuses on lab skills, instrumentation techniques, research design and ethics in science. In their senior year, students are required to develop, in conjunction with a faculty member, a research project to complete their capstone experience at Drake. Following completion of this yearlong project, students prepare a presentation and an oral defense of their work in a seminar to faculty and peers.

### **EDUCATIONAL GOALS AND OBJECTIVES OF THE BACHELOR OF SCIENCE PROGRAM IN PHARMACY**

The learning goals and outcomes of the B.S.P.S. Program include seven skill areas in which students will become competent upon completion of the program. Many of these skills are transferable from the Drake Curriculum and further developed within the major with other skill areas developed primarily within the coursework of the B.S.P.S. program.

#### ***Knowledge, Skills and Values Consistent with the Science and Application of Pharmaceutical Sciences***

Goal 1. Knowledge Base of Pharmaceutical Sciences. Students will demonstrate familiarity with the major concepts and theories in Pharmaceutical Sciences.

Goal 2. Research Methods and Experimental Design in Pharmaceutical Sciences. Students will understand and apply basic research methods in the Pharmaceutical Sciences, including research design, data analysis and interpretation.

Goal 3. Critical Thinking Skills in Pharmaceutical Sciences. Students will use critical and creative thinking, skeptical inquiry and the scientific approach to solve problems.

Goal 4. Values in Pharmaceutical Sciences. Students will be able to weigh evidence, tolerate ambiguity, act ethically and reflect other values that are the underpinnings of Pharmaceutical Sciences as a discipline.

#### ***Knowledge, Skills and Values Consistent with Liberal Arts Education that are Further Developed in Pharmaceutical Sciences***

Goal 5. Information and Technological Literacy. Students will demonstrate information competence and the ability to use computers and other technology for many purposes.

Goal 6. Communication and Collaborative Skills. Students will be able to communicate effectively in a variety of formats and actively participate in collaborative environments.

Goal 7. Career Planning and Development. Students will emerge from the major with realistic ideas regarding how to implement their knowledge, skills and values in occupational pursuits in a variety of settings.

### The B.S.P.S. Curriculum

The following is the curriculum for the third and fourth years of the curriculum. Please note that courses in the program may change. Please view updates at <http://www.pharmacy.drake.edu>.

#### First/Second Year

See pre-pharmacy curricular requirements in previous section

#### Third Year

| FALL                        |                    | Credit hours |
|-----------------------------|--------------------|--------------|
| BIO 129                     | Physiology         | 5            |
| PHAR 130                    | Biochemistry       | 4            |
| PHAR 131                    | Intro to Pharm Sci | 3            |
| PHAR 140                    | Pharmaceutics I    | <u>1</u>     |
| Semester Total Credit Hours |                    | 16           |

#### SPRING

|                             |                             |          |
|-----------------------------|-----------------------------|----------|
| ELEC ---                    | Drake Curr/Gen Elective     | 3        |
| PHAR 103                    | Pharmacy Calculations       | 2        |
| PHAR 142                    | Pharmacokinetics            | 3        |
| PHAR 152                    | Instrumentation Methods/Lab | 3        |
| PHAR 163                    | Pharmacology                | 3        |
| PHAR 188                    | Phar Sci Seminar            | <u>1</u> |
| Semester Total Credit Hours |                             | 15       |

#### Fourth Year

| FALL                        |                   |          |
|-----------------------------|-------------------|----------|
| ELEC ---                    | Science Electives | 12       |
| PHAR 189                    | Phar Sci Seminar  | 1        |
| PHAR 196                    | Senior Research   | <u>3</u> |
| Semester Total Credit Hours |                   | 16       |

#### SPRING

|                             |                   |          |
|-----------------------------|-------------------|----------|
| ELEC ---                    | Science Electives | 12       |
| PHAR 189                    | Phar Sci Seminar  | 1        |
| PHAR 196                    | Senior Research   | <u>3</u> |
| Semester Total Credit Hours |                   | 16       |
| Total Program Hours:        |                   | 126      |

#### Electives

The following courses may be used to fulfill the 24 hours of science electives required during the senior year:

- Chem 165 --- Physical Chemistry I --- 4 cr.
- Chem 166 --- Physical Chemistry II --- 4 cr.
- Chem 182 --- Adv. Analytical Chem --- 4 cr.
- Phy 011 --- Physics I --- 4 cr.
- Phy 012 --- Physics II --- 4 cr.
- Bio 165 --- Cell Biology --- 4 cr.
- Bio 186 --- Molecular Biology --- 3 cr.
- Phar 119 --- Topcs in Neuropharm --- 3 cr.
- Phar 114 --- Advances in Cardiac Disease --- 3 cr.
- Phar 118 --- Neurodegenerative Disease --- 1 cr.
- Phar 127 --- Exercise Physiology --- 3 cr.

## **Pharmacy Scholarships and Awards**

The following scholarships are available to pharmacy students in the Professional Program who have completed one year of residence in Drake's College of Pharmacy and Health Sciences. Pharmacy students also may qualify for scholarships, loans and other financial aid listed in the Financial Aid section of this catalog.

### **SCHOLARSHIPS**

Applications for the following scholarships are available at [pharmacy.drake.edu](http://pharmacy.drake.edu) on December 1 and are due by February 1. One general application fulfills the application for all scholarships.

**CVS SCHOLARSHIPS.** Criteria include a student in the last two years of the pharmacy program who has demonstrated an interest in community-practice pharmacy.

**EGGLESTON/GRANBERG GOLF OUTING SCHOLARSHIP.** Funds raised from this annual event held in conjunction with the Iowa Pharmacy Association, Drake University and the University of Iowa College of Pharmacy are awarded to students who have been involved in professional organizations.

**HARTIG FAMILY SCHOLARSHIP AWARD.** Criteria include a student from Iowa entering the last two years of the pharmacy program.

**IOWA PHARMACISTS ASSOCIATION ALLIANCE SCHOLARSHIP.** This scholarship is awarded to a student in the last two years of schooling who has maintained a high scholastic average and needs financial assistance.

**IOWA PHARMACY FOUNDATION SCHOLARSHIPS.** The foundation provides scholarships to worthy students who are in need of financial assistance. Recipients have completed at least one year of residence in the College of Pharmacy and Health Sciences.

**LONG'S PHARMACY SCHOLARSHIP.** Criteria include high scholastic standing and an interest in community pharmacy.

**OSCO-ALBERTSON'S SCHOLARSHIPS.** This scholarship is awarded to students in the last two years of their schooling who have an interest in community pharmacy. Criteria include good academic standing in the last three years of the degree program and an interest in community pharmacy.

**PHARMACISTS MUTUAL.** This scholarship is provided to a student who is in the last two years of the program and has excelled academically.

**PLOUGH FOUNDATION SCHOLARSHIPS.** Students who meet criteria established may be awarded scholarships from the Plough Pharmacy Student Scholarship Fund. Criteria for selection include scholarship, financial need and leadership. Recipients of the awards are designated as Plough Scholars.

**RICHARD AND BRENDA HARTIG SCHOLARSHIP.** This scholarship award is provided during the last two years of the pharmacy program to recognize professional involvement and voluntary service.

**WALGREEN CO.** Scholarships are awarded to students who are either interns employed by Walgreens, or have an interest in community practice. Special awards are presented to students who have engaged in research that has benefited community pharmacy practice.

**WALGREEN CO./BOB ARNOLD MEMORIAL SCHOLARSHIP** is awarded to a student with high scholastic standing and financial need.

**WALGREEN CO./RONALD B. KLUZA MEMORIAL SCHOLARSHIP** is awarded to a student with high scholastic standing and financial need.

**WAL-MART PHARMACY SCHOLARSHIP AWARD** is awarded to a student in the last two years of the program with high scholastic standing, strong leadership qualities, financial need and an interest in community pharmacy practice.

## **AWARDS**

**MARY WALLBRIDGE PATTON AWARD.** This monetary award is provided to a student who has completed and submitted a community service portfolio to the Dean's Office, demonstrating the awardee's commitment to service.

**AMERICAN SOCIETY OF HOSPITAL PHARMACISTS STUDENT LEADERSHIP AWARD.** A current edition of AHFS Drug Information is presented to a student with an interest in institutional pharmacy practice, has achieved academic excellence and demonstrated leadership potential.

## **GRADUATE AWARDS**

**EXCELLENCE IN CLINICAL COMMUNICATION SKILLS.** This award, a wall plaque, is presented to a graduating student who best exemplifies excellence in patient clinical communication skills as an integral part of the pharmacist's services to the patient. Sponsored by Facts and Comparisons.

**EXCELLENCE IN COMMUNICATIONS.** This award, sponsored by Roche, recognizes a graduating student who has demonstrated outstanding ability and achievement in communication skills.

**EXCELLENCE IN NON-PRESCRIPTION MEDICATION STUDIES.** Perrigo Inc. provides an award which is presented to a student who has excelled in non-prescription medication studies. This award provides a cash prize and plaque to the recipient.

**EXCELLENCE IN PATIENT CARE AWARD.** This award, sponsored by Glaxo-SmithKline, is presented to a senior student for excellence in patient care.

**EXCELLENCE IN PHARMACY.** Sponsored by Mylan, this award is presented to students who have achieved in the top 25% academically, have shown a high professional motivation and superior proficiency in the provision of drug information.

**NATURAL MEDICINES RECOGNITION AWARD.** Presented to a student who has exhibited an interest in the use of natural medicines and excelled in patient care, this award is sponsored by Natural Medicines Comprehensive Database.

**OUTSTANDING COMMUNITY PRACTICE PHARMACY GRADUATE.** This award is presented to a graduating student who will be entering community practice and has demonstrated exceptional abilities in community pharmacy. Sponsored by Russ Johnson Jr., this award provides a one-year membership to the National Community Pharmacists Association.

**OUTSTANDING STUDENT AWARD.** Presented by TEVA, this award recognizes a student who has excelled in the study of pharmacy.

**PROFESSIONALISM AWARD.** A wall plaque is awarded for outstanding professionalism and service to the college. This award is sponsored by the American Pharmaceutical Association (APhA).

**SCHOLASTIC ACHIEVEMENT IN PHARMACY STUDIES.** Merck and Company offers a prize, awarded in a student's senior year, for excellence in the prescription laboratory.

**SUPERIOR ETHICS, SCHOLARSHIP AND LEADERSHIP AWARD.** A Gold Medal given for superior scholastic and professional achievement, sponsored by Eli Lilly and Company.

## **PHARMACY ORGANIZATIONS**

The following organizations are available to pharmacy students at Drake University:

**DRAKE UNIVERSITY R<sub>x</sub> (PHARMACY) UNIFIED GROUP OF STUDENTS (DR<sub>x</sub>UGS).** This unified organization, established in 2001, is open to all students in the pharmacy program. Student members are also members of the Iowa Pharmacy Association and have the choice of joining one of the following national organizations:

ACADEMY OF MANAGED CARE PHARMACY (AMCP). The Drake University chapter of AMCP was begun in 2002 and represents the managed care practice environment.

AMERICAN PHARMACEUTICAL ASSOCIATION – ACADEMY OF STUDENT PHARMACISTS (APhA-ASP). The Drake University chapter of the American Pharmaceutical Association was established in 1947 and represents all areas of pharmacy practice.

AMERICAN SOCIETY OF HEALTH SYSTEMS PHARMACISTS (ASHP). The Drake University chapter of ASHP was established in 1985 and represents those students interested in hospital or health-systems practice setting.

NATIONAL COMMUNITY PHARMACISTS ASSOCIATION (NCPA). The Drake University chapter of this association was inducted in 1995 to serve those students interested in community pharmacy.

STUDENT NATIONAL PHARMACEUTICAL ASSOCIATION (SNPhA). The Drake University chapter of the SNPhA, established in 1992, is an educational and service association of students who are concerned about pharmacy issues, professional development, the lack of minority representation in pharmacy and other health-related professions.

DEAN'S STUDENT ADVISORY COUNCIL is a group of elected pharmacy students who meet regularly with the dean to provide counsel regarding the strengths and weaknesses of the college, to advise regarding curricular and faculty concerns and to assist the college in faculty recruitment efforts.

KAPPA PSI is a national professional pharmaceutical fraternity founded at the New Haven Collegiate and Commercial Institute in 1879. The local (Beta Chi) chapter was installed at the Des Moines College of Pharmacy in 1930 and transferred to Drake in 1939.

PHARMACY DAY COMMITTEE. Pharmacy Day is an annual one-day professional event held during the spring semester, organized and planned by pharmacy students. Contemporary pharmacy issues are discussed by guest speakers, scholarship and award recipients are announced, and an exhibition hall/career fair is held.

PHI DELTA CHI is a national professional pharmaceutical fraternity founded at the University of Michigan in 1883. The local (Psi) chapter was authorized at Des Moines University in 1921, transferred to Des Moines College of Pharmacy in 1928 and to Drake in 1939.

PHI LAMBDA SIGMA is a national pharmacy leadership society for pharmacy students who have displayed leadership qualities and have been recognized for these qualities by their peers. The Drake University chapter of Phi Lambda Sigma was established in 1992.

RHO CHI PHARMACEUTICAL HONOR SOCIETY is a national honor society organized to promote the advancement of pharmaceutical sciences. The society was founded at the University of Michigan in 1922. Alpha Sigma chapter was established at Drake in 1951. Eligible for membership are students who have completed 60 percent or the equivalent of no fewer than 75 credit hours required for graduation and are in the top 20% of their class academically.