

PHARMACY

The pharmacist is one of the most accessible members of today's health care team. More than 200 million people—nearly two-thirds of our entire population—pass through America's pharmacies each week. At more than 50,000 locations, for most hours of the day, pharmacists are ready to serve the public and address their complete pharmaceutical care needs. The pharmacist traditionally has been the first source of advice and assistance for many health concerns. Today, pharmacists are assuming more responsibility in attempting to better meet the health care needs of society.

The Program

The North Dakota State University College of Health Professions, and its School of Pharmacy, houses one of more than 130 schools fully accredited by the Accreditation Council for Pharmacy Education (ACPE). The School of Pharmacy offers a six-year professional degree program leading to the Doctor of Pharmacy (Pharm.D.). The School of Pharmacy is a member of the American Association of Colleges of Pharmacy.

Pharmaceutical Care

The profession of pharmacy has embraced a practice philosophy called pharmaceutical care. Specifically, pharmaceutical care is defined as commitment of the pharmacist to design, implement and monitor patient drug therapy for the purpose of achieving optimal therapeutic outcomes with the ultimate goal of improving the patient's quality of life.

The NDSU School of Pharmacy has developed an emphasis of pharmaceutical care within its curriculum and strives to prepare pharmacy students for their future practices in delivering this contemporary practice philosophy. The curriculum develops skills in pharmaceutical care and emphasizes critical thinking, communication skills, awareness of ethical and social responsibilities, and lifelong self-learning ability.

Career Preparation

Pharmacists today are responsible for ensuring the rational, safe and cost-effective use of drugs. Pharmacist duties include: participating in the drug use decision-making process, establishing therapeutic goals for each patient, selecting the appropriate drug dosage form, selecting the drug product source of supply, determining the dose and dosage schedule, preparing the drug product for patient use, providing the drug product and drug information to the patient, monitoring the patient to maximize compliance, monitoring the patient to detect adverse drug reactions and drug interactions, and monitoring the patient's progress to improve therapeutic outcomes.

Numerous drug therapy problems are recognized and corrected by pharmacists in their practices. Pharmacists work closely with the prescriber and patient to ensure proper and safe use of medications.

The current professional pharmacy curriculum fully integrates classroom and experiential learning. All pharmacy students participate in experiential learning (introductory pharmacy practice

experiences) and in the Thrifty White Concept Pharmacy each year. The Thrifty White Concept Pharmacy Laboratory is a state-of-the-art model pharmacy that allows students to experience all aspects of pharmacy practice in a real-life environment.

Career Opportunities

Employment of pharmacists within the region remains strong and is expected to grow at a steady pace over the next decade. There has been an increased demand for pharmaceutical services by the public as the population ages and as more potent, costly and high risk drugs enter the marketplace. Approximately 60 percent of pharmacists practice in community pharmacies with the remainder employed as hospital pharmacists, managed care specialists, home health care providers, nursing home consultants, research and product development scientists, and teachers in colleges and universities. According to the U.S. Department of Labor Bureau of Labor Statistics, the average salary in 2017 for pharmacists was \$121,710 (www.bls.gov/oes/current/oes291051.htm).

Selective Admission

NDSU's pharmacy program consists of two phases, a pre-pharmacy phase and a professional pharmacy phase. The professional program limits enrollment to 85 new students per class. Students may qualify for admission via one of two different paths.

The "early admission" path is designed for high achieving high school students who seek an expedited path to the professional program. Students are selected for this path based on their academic credentials including high school grade point averages and ACT or SAT scores. Preference is given to North Dakota residents and students are evaluated during the spring before they enroll at NDSU as first-year students. To be considered, students must be admitted to NDSU and must complete the PharmCAS application along with all required application fees (which includes a \$125.00 nonrefundable fee to the NDSU School of Pharmacy and a PharmCAS application fee) by February 1. Students who apply by the deadline will be notified by March 1. At the conclusion of the first year, students who maintain academic and professional requirements transition into a five-year professional program. During the first year in the professional program, students complete all remaining pre-professional requirements, including an expedited set of courses that prepare them for the final four years of the professional program. To satisfy ACPE accreditation requirements, students also complete the Pharmacy College Admissions Test (PCAT) and an on-site interview. Transition into the final four years of the professional program is guaranteed as long as students meet all academic and professional requirements as specified by the College of Health Professions at the time of admission and in the conditional admission letter for the early admission path.

The second path is the "traditional" path. Pre-pharmacy students (including transfer students) typically apply for admission to the four-year professional program during the second (or in some cases the third) pre-pharmacy year.

Students are selected based on academic performance in pre-pharmacy courses. Preference is given to North Dakota residents and students who attend NDSU. A cumulative grade point average of 3.0 (4.0 = A) or above is required before an applicant will be evaluated for admission to the professional program. The actual admission cutoff typically can be much higher. The Pharmacy College Admission Test (PCAT) is an admission requirement, as is an on-site interview. Supplemental applications are due on or before December 31 for subsequent fall semester admission. Supplemental applications are submitted online directly to the Pharmacy Admissions Committee. A nonrefundable \$125.00 application fee must accompany the supplemental application.

Differential Tuition

Students in the pharmacy professional program (i.e, the final five years of study for students on the early admission path, and the final four years for students on the traditional admission path) are assessed a different tuition rate. This differential tuition is assessed to cover the higher costs associated with the program.

Current Curriculum

The curriculum leading to the Pharm.D. degree requires a minimum of six years of study. Approximately 77 semester hours are required in the pre-professional curriculum. The vast majority of required pre-professional courses (listed by name and number) must be completed by the end of spring term prior to admission to the professional program for traditional path students, or for early admission students, the final four years of the professional program. A maximum of six elective credits may be taken during the summer prior to entrance in the professional program.

The four-year professional program is divided into three years of didactic education on campus and one year (40 weeks) of experiential training (advanced pharmacy practice experience) with qualified preceptors at various practice sites. Additional introductory experiential training occurs during the summer sessions following the first and second years of the professional program, as well as during the third professional academic year. A wide variety of experiential rotation offerings are available to students. Students should plan to travel outside the Fargo-Moorhead area to fulfill their experiential program requirements.

Pre-Pharmacy Program Requirements

Please note this is a sample plan of study; actual student schedules will vary depending on start year, individual goals, applicable transfer credit, and course availability. Students are encouraged to work with their academic advisor on a regular basis to review degree progress and customize their own plan of study.

First Year					
Fall	Credits	Spring	Credits	Summer	Credits
BIOL 150 General Biology I	3	BIOL 151 General Biology I	3	Gen Ed Humanities & Fine Arts	6
BIOL 150L General Biology I Lab	1	BIOL 151L General Biology I Lab	1		
CHEM 121 General Chemistry I	3	CHEM 122 General Chemistry I	3		
CHEM 121L General Chemistry I Lab	1	CHEM 122L General Chemistry I Lab	1		
ENGL 120 College Composition II	3	COMM 110 Fund of Public Speaking	3		
MATH 146 Applied Calculus I	4	ECON 201 Prin of Microeconomics	3		
CHP 190 Critical Thinking & Academic Success	2	STAT 330 Introductory Statistics	3		
	17		17		6
Second Year					
Fall	Credits	Spring	Credits		
PSCI 391 Seminar in Organic Chemistry for Pharmacists	5	PSCI 499 Special Topics in Biochemistry and Molecular Biology for Pharmacists	5		
BIOL 220 Human Anatomy and Physiology I	3	BIOL 221 Human Anatomy and Physiology II	3		
BIOL 220L Human Anatomy and Physiology I Lab	1	BIOL 221L Human Anatomy and Physiology II Lab	1		
COMM 216 Intercultural Communication	3	PHARM 324 / ENGL 324 Professionalism in Pharmacy	3		
MICR 350 or 202 Gen Microbiology or Intro Microbiology	3	MICR 460 Pathogenic Microbiology	3		
MICR 350L or 202L Gen Microbiology Lab or Intro Microbiology Lab	2	PHYS 211 College Physics I	3		
Gen Ed Wellness	2				
	19		18		
Total Credits: 77					

View NDSU equivalencies of transfer courses at: www.ndsu.edu/transfer/equivalencies

For Further Information

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