

Pharmacy

Department Information

- **Department Web Site:**
www.ndsu.edu/pharmacy/ (<http://www.ndsu.edu/pharmacy/>)
- **Credential Offered:**
B.S.; Pharm.D.
- **Official Program Curriculum:**
catalog.ndsu.edu/undergraduate/program-curriculum/pharmacy/ (<http://catalog.ndsu.edu/undergraduate/program-curriculum/pharmacy/>)

The Pharmacy program (PharmD) encompasses both the basic and clinical sciences and is designed to provide you with the knowledge, skills, and attitudes essential to the practice of pharmacy. Pharmacists work in concert with the patient and other health care providers to promote health and prevent diseases. This is achieved by assessing, monitoring, initiating and modifying patients' medication therapy to achieve optimal therapeutic outcomes.

The current entry-level PharmD curriculum is designed to give you the professional competencies necessary to enter pharmacy practice in any setting to ensure optimal medication therapy outcomes and patient safety, and to satisfy the educational requirements for licensure as a pharmacist.

The PharmD degree prepares you to accept positions in community, hospital, managed care, clinical, and industrial pharmacy. Other potential opportunities include administrative positions in pharmaceutical companies and associations. Also, teaching and research positions in universities and the pharmaceutical industry are excellent opportunities for those with advanced training in pharmacy.

There are four routes to pursue admission to NDSU's PharmD program.

Option 1: The Early Admission Pathway (https://www.ndsu.edu/pharmacy/degrees_and_programs/pharmacy_program/eap/)

The Early Admission Pathway (EAP) to NDSU's PharmD program is designed for academically qualified high school students who want an affordable, expedited path to a PharmD degree. If you are interested in EAP, you would apply during your senior year in high school.

Option 2: The Traditional Admissions Pathway (https://www.ndsu.edu/pharmacy/degrees_and_programs/pharmacy_program/traditional/)

The Traditional Admissions Pathway involves you entering the program as an undergraduate in pre-pharmacy upon meeting general admission standards of the university. Once all required pre-pharmacy coursework is satisfied, you can apply to the PharmD program. The pre-pharmacy course work may be completed at other institutions and NDSU reviews transfer records submitted and determine if equivalent to NDSU requirements.

You are admitted to the final four professional years on a competitive basis after meeting specific admission requirements of the college which can be found on the Traditional Pathway page (https://www.ndsu.edu/pharmacy/degrees_and_programs/pharmacy_program/traditional/). Students attending other institutions must maintain frequent contact with the college to determine appropriate course work.

The college is a member of the American Association of Colleges of Pharmacy, and is accredited by the Accreditation Council for Pharmacy Education (ACPE).

Option 3: The Post-Baccalaureate Pathway (https://www.ndsu.edu/pharmacy/degrees_and_programs/pharmacy_program/post_bac/)

Students who will hold a four-year bachelor degree in a health or STEM field on or before May 2023 are eligible to apply for admission to NDSU's PharmD program through a new, streamlined pathway. The pathway has fewer requirements because many of our admission requirements are implicitly met by students who have completed a bachelor degree in a health or STEM field. If an applicant holds a bachelor degree in a health or STEM field and is missing key pre-requisites, we offer a means to complete those courses in the summer before starting the PharmD program.

Note: the NDSU Pharmacy Program encourages applicants holding a four-year bachelor degree in an array of health or STEM fields, from any accredited college or university that offers four-year bachelor programs. Students who wish to pursue this pathway as an undergraduate major in the College of Health Professions may do so by completing the degree requirements for our Bachelor of Science in Health Services (https://www.ndsu.edu/healthprofessions/deg_prog/health_services/) program.

Option 4: Pharmacy Technician Pathway (https://www.ndsu.edu/pharmacy/degrees_and_programs/pharmacy_program/pharmtech_pharmd/)

Are you a pharmacy technician who is eligible for pharmacy technician licensure in North Dakota, and who is interested in becoming a pharmacist? If so, this new pathway is designed to provide you with a streamlined pathway to meet the NDSU Pharmacy Program's admission requirements. If you completed a pharmacy technician program at a college or university and received academic credit for your program, all of those credits will count towards meeting our admission requirements.

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.

Our pharmacy program partners with PioneerRx (<http://www.pioneerrx.com/>), a pharmacy management system, to simulate the functions of today's pharmacies.

Pre-Pharmacy Traditional Pathway

All students interested in NDSU's Doctor of Pharmacy program must be accepted to study a major at NDSU. A formal NDSU application for admission must be submitted through the Office of Admission website (<https://www.ndsu.edu/admission/>) by all applicants, with exception of current or former NDSU students. Former students must apply for readmission to NDSU through the NDSU readmission page (https://www.ndsu.edu/admission/how_to_apply/readmission/).

In addition, students interested in pharmacy must apply to the professional pharmacy program. All applicants to the NDSU Doctor of Pharmacy program must apply using the through the link below.

A cumulative grade point average of 3.0 or higher is required before an applicant will be evaluated. Applicants who are NOT currently NDSU students must submit official transcripts of previous academic work to the University's Admissions Office and one set to the NDSU School of Pharmacy.

- PharmD Technical Standards. Students must meet ALL of these technical standards to be eligible for admission to the NDSU Doctor of Pharmacy program. Please reviews these standards before applying.

Sample Program Guide - Pre-Pharmacy Traditional Path

IMPORTANT DISCLAIMER: A Sample Program Guide provides an unofficial guide of program requirements and should be used by prospective students who are considering attending NDSU in the future. It is NOT an official curriculum and should NOT be used by current NDSU students for official degree planning purposes. Note that the official curriculum used by current NDSU students can vary from the Sample Program Guide due to a variety of factors such as, but not limited to, start year, education goals, transfer credit, and course availability.

To ensure proper program completion, enrolled students should utilize Degree Map (<https://www.ndsu.edu/registrar/degreemap/>) and Schedule Planner (<https://www.ndsu.edu/onestop/degree-map-and-planning/>) in Campus Connection and consult regularly with their academic advisor to ensure requirements are being met.

PRE-PHARMACY PROGRAM REQUIREMENTS

Plan follows most closely with Traditional 3-year pathway plan with allows room for a minor of study, other pathways may differ slightly

| First Year | | | |
|------------|---------|---------------------------|---------|
| Fall | Credits | Spring | Credits |
| BIOL 150* | | 3 BIOL 151* | 3 |
| BIOL 150L* | | 1 BIOL 151L* | 1 |
| CHEM 121* | | 3 CHEM 122* | 3 |
| CHEM 121L | | 1 CHEM 122L | 1 |
| ENGL 110 | | 3 COMM 110* | 3 |
| MATH 146* | | 4 ECON 201* | 3 |
| CHP 190 | | 3 ENGL 120 ¹ * | 3 |
| | | STAT 330* | 3 |

| Second Year | | | |
|---|---------|--|-----------|
| Fall | Credits | Spring | Credits |
| BIOL 220* | | 3 BIOL 221 | 3 |
| BIOL 220L* | | 1 BIOL 221L | 1 |
| CHEM 341 | | 3 CHEM 342 | 3 |
| CHEM 341L | | 1 PHYS 211 | 3 |
| Gen Ed Social/Behavioral Sci and Cultural Diversity | | 3 Gen Ed Humanities and Fine Arts | 3 |
| Gen Humanities & Fine Arts | | 3 Credits Towards Minor ² | 3 |
| Wellness Gen Ed | | 2 | |
| | | 16 | 16 |
| Third Year | | | |
| Fall | Credits | Spring | Credits |
| BIOC 460 | | 3 BIOC 461 | 3 |
| MICR 350* | | 3 ENGL 324 or 325 | 3 |
| MICR 350L* | | 2 Credits Towards a Minor ² | 12 |
| Credits towards Minor ² | | 9 | |
| | | 17 | 18 |

Total Credits: 105

*

Selected core courses will be used for selection criteria to determine GPA in calculation for admission to the professional program.

1

Course can be taken fall semester if student tests out of ENGL 110

2

Minor not required but plan built to allow

Pre-Pharmacy EAP Pathway

The Early Admission Pathway (EAP) to NDSU's PharmD program is an early assurance program designed for academically qualified high school students who want an affordable, expedited path to a PharmD degree. If you are interested in EAP, you would apply during your senior year in high school. Acceptance into the EAP programs means that you are conditionally accepted to the PharmD program. As long as you successfully complete all requirements to maintain your spot, we assure you a seat in the final four years of the PharmD program. Thus if you meet program requirements, it is a six-year path (saves up to 2 years of time in college). Sophomore EAP (P.5) students pay differential tuition and are considered professional-level students.

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PRE-PHARMACY EAP PROGRAM REQUIREMENTS

Plan follows most closely with EAP 2-year pathway plan, other pathways may differ slightly. Differential tuition applies to second year of coursework.

| First Year | | | | |
|------------|---------|-------------|---------|---|
| Fall | Credits | Spring | Credits | Summer |
| BIOL 150 | | 3 BIOL 151 | | 3 Gen Humanities & Fine Arts ² |
| BIOL 150L | | 1 BIOL 151L | | 1 |
| CHEM 121 | | 3 CHEM 122 | | 3 |

| | | | |
|-----------|-----------|-----------------------|-----------|
| CHEM 121L | 1 | CHEM 122L | 1 |
| ENGL 110 | 3 | COMM 110 | 3 |
| MATH 146 | 4 | ECON 201 | 3 |
| CHP 190 | 3 | ENGL 120 ¹ | 3 |
| | | STAT 330 | 3 |
| | 18 | | 20 |
| | | | 3 |

| Second Year | | | |
|---|-----------|-----------------------------------|-----------|
| Fall | Credits | Spring | Credits |
| BIOL 220 | | 3 BIOL 221 | 3 |
| BIOL 220L | | 1 BIOL 221L | 1 |
| MICR 350 | | 3 PHRM 324 | 3 |
| MICR 350L | | 2 PHYS 211 | 3 |
| PSCI 300 | | 5 PSCI 301 | 5 |
| Gen Ed Social/Behavioral Sci and Cultural Diversity | | 3 Gen Ed Humanities and Fine Arts | 3 |
| Wellness Gen Ed | | 2 | |
| | 19 | | 18 |

Total Credits: 78

1

Course can be taken fall semester if student tests out of ENGL 110

2

If not already taken or will take during another semester.

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| Code | Title | Credits |
|-----------------------------------|--|---------|
| P1 First Year Professional | | |
| MICR 470 | Basic Immunology | 3 |
| PSCI 367 | Pharmaceutical Calculations | 1 |
| PSCI 368 | Pharmaceutics I | 3 |
| PSCI 369 | Pharmaceutics II | 2 |
| PSCI 410 | Pharmaceutical Biotechnology | 2 |
| PSCI 411 | Principles of Pharmacokinetics and Pharmacodynamics | 3 |
| PSCI 412 | Chemotherapeutic/Infectious Disease Pharmacodynamics | 3 |
| PSCI 470 | Pharmacokinetics | 3 |

| | | |
|---|---|----------|
| PHRM 301 | Top Drugs I | 1 |
| PHRM 340 | Patient Assessment and Pathophysiology I | 4 |
| PHRM 341 | Pathophysiology II | 3 |
| PHRM 351L | Pharmacy Practice Laboratory I | 2 |
| PHRM 353 | Introduction to Pharmacy and the Health Care System | 3 |
| PHRM 455 | Community Introductory Pharmacy Practice Experience | 4 |
| PHRM 480 | Evidence Based Medicine | 3 |
| P2 Second Year Professional | | |
| CHP 400 | Interprofessional Health Care Practice | 3 |
| PSCI 413 | Endocrine/Respiratory/GI Pharmacodynamics | 3 |
| PSCI 414 | Cardiovascular Pharmacodynamics | 3 |
| PSCI 415 | Neuropsychiatry Pharmacodynamics | 3 |
| PSCI 417 | Pharmacogenomics | 2 |
| PHRM 355 | Institutional Introductory Pharmacy Practice Experience | 3 |
| PHRM 400 | Top Drugs II | 1 |
| PHRM 450 | Self Care | 3 |
| PHRM 452L | Pharmacy Practice Laboratory II | 2 |
| PHRM 532 | Infectious Disease | 3 |
| PHRM 534 | Rheumatology/Endocrinology/Gastrointestinal | 3 |
| PHRM 535 | Hematology and Oncology | 3 |
| PHRM 538 | Cardiovascular and Pulmonary Diseases | 4 |
| PHRM 565 | Pharmacy-Based Immunization Delivery | 1 |
| P3 Third Year Professional | | |
| PHRM 500 | Top Drugs III | 1 |
| PHRM 520 | Special Populations | 3 |
| PHRM 536 | Neurology & Psychiatry Pharmacotherapy | 3 |
| PHRM 537 | Renal Disease/Fluid and Electrolytes | 2 |
| PHRM 540 | Public Health for Pharmacists | 3 |
| PHRM 545L | Pharmacotherapy Laboratory | 1 |
| PHRM 551L | Pharmacy Practice Laboratory III | 2 |
| PHRM 552L | Pharmacy Practice Laboratory IV | 2 |
| PHRM 560 | Specialty Care Topics | 2 |
| PHRM 570 | Pharmacy Practice Improvement and Project Management | 2 |
| PHRM 572 | Pharmacy Law and Ethical Considerations | 3 |
| PHRM 575 | Pharmacy Practice Management | 3 |
| PHRM 580 | Pharmacotherapy Capstone | 3 |
| Professional Electives <small>List of professional electives in handbook and in Blackboard PharmD Student Community.</small> | | 6 |
| P4 Fourth Year Professional | | |
| PHRM 576 | Essentials for Pharmacist Licensure I | 1 |
| PHRM 577 | Essentials for Pharmacist Licensure II | 2 |
| PHRM 578 | Essentials for Pharmacist Licensure III | 2 |
| Student will choose 8 out of 9 rotations for a total of 40 credits. Each rotation is 5 credits. | | 40 |
| PHRM 581 | Advanced Pharmacy Practice Experience - Rotation I | |
| PHRM 582 | Advanced Pharmacy Practice Experience - Rotation II | |
| PHRM 583 | Advanced Pharmacy Practice Experience - Rotation III | |
| PHRM 584 | Advanced Pharmacy Practice Experience - Rotation 4 | |
| PHRM 585 | Advanced Pharmacy Practice Experience - Rotation 5 | |
| PHRM 586 | Advanced Pharmacy Practice Experience - Rotation 6 | |
| PHRM 587 | Advanced Pharmacy Practice Experience - Rotation 7 | |
| PHRM 588 | Advanced Pharmacy Practice Experience - Rotation 8 | |

| | | |
|----------------------|--|------------|
| PHRM 589 | Advanced Pharmacy Practice Experience - Rotation 9 | |
| Total Credits | | 158 |