



PRE-PHARMACY

COLLEGE OF ARTS & SCIENCES

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It is our goal at UND to prepare students for any pharmacy school in the country. Getting accepted into any pharmacy school is done through a highly competitive, two stage application process. It is extremely important that you are well prepared and able to present the best possible application to pharmacy schools when you apply - good planning is key!

The Pre-Pharmacy Program is not a major or degree granting program at UND. In order to graduate with a degree from UND, you will need to:

- Choose a **Major** and complete the specific requirements determined by the department responsible for that major
- Complete the **Essential Studies Requirements**
- Complete 125 semester credits (36 of which must be upper divisional credits)

You will be assigned two advisors while pursuing your degree and the Pre-Pharmacy Program at UND:

- A major advisor (from your major department) to help with the planning of your major curriculum
- The Health Sciences Advisor (from the College of Arts & Sciences) to help with all aspects of pharmacy school preparation

Joining the Pre-Pharmacy Program is easy!:

1. Incoming freshmen students should plan to attend Summer Orientation - you can declare Pre-Pharmacy at that time
2. Current or transfer students can declare Pre-Pharmacy by stopping by the A&S main office or by calling us at 701-777-2749

Staying in the Pre-Pharmacy Program is hard!:

1. *Incoming Freshmen* must:
 - Attend all freshmen group advising meetings during the fall semester
 - Attend one freshmen group advising meeting during the spring semester
 - Complete the following courses, with a C grade or better, before the start of sophomore year:
 - Bio 150-151, with labs
 - Math 103 (may test out of this with an ACT Math score of 26, or appropriate Math placement test score)
 - Chem 121-122, with labs
 - Maintain a cumulative GPA of 3.0 or higher during freshman year
2. *Transfer students, or current students switching to Pre-Pharmacy after freshman year*, must:
 - If not already completed at UND or transferred in, complete the following courses with a C grade or better:
 - Bio 150-151, with labs
 - Math 103
 - Chem 121-122, with labs
 - Have a cumulative GPA of 3.0 or higher
3. *All continuing Pre-Pharmacy students* must:
 - Take Pre-Pharmacy courses as advised
 - Prepare for and take the PCAT
 - Keep cumulative GPA and science GPA competitive

Pharmacy schools consider a variety of factors when reviewing applications:

1. Academics

a. Undergraduate Preparation

Admission into pharmacy school requires anywhere from 1 year of undergraduate work to completion of an undergraduate degree (BS, BA, etc.) from an accredited college or university. All pharmacy schools have specific content or course prerequisites which are included in the UND Pre-Pharmacy Program. UND accepts AP and post-secondary transfer credits toward the completion of a bachelor's degree in accordance with the NDUS policies of [General Education Requirement Transfer Agreement](#) (GERTA) and [Common Course Numbering](#) (CCN). UND also has numerous articulation agreements and course equivalencies with other academic institutions. You should, however, check with the pharmacy schools on your wish list regarding the post-UND implications of any AP, IB, CIS, CLEP, on-line, distance learning or community college work you plan to complete prior to your undergraduate matriculation.

b. Major

Pharmacy schools requiring undergraduate degrees do not require any particular major. Pre-Pharmacy students have completed such majors as Biology, Business, Chemistry, Dietetics, Engineering, Honors, Interdisciplinary Studies, Nutrition, and Psychology.

The choice for a major is entirely up to you! You should pick something you are good at, or enjoy studying, or fits your "plan B" if you don't end up going to pharmacy school. A list of each major and degree offered at UND may be found at: <http://und.edu/academics/registrar/fields-of-study.cfm>. Click on a particular major to see what you will be studying, as well as opportunities and careers associated with that major. For specific requirements and course descriptions, click on the [Academics – Check out the courses you'll take](#) link on the right side of each major page. Four year plans (i.e., schedule of courses) for each degree are listed by college and are posted online at: <http://und-public.courseleaf.com/4yearplan/>.

The combination of the Pre-Pharmacy Program with a major in the College of Arts and Sciences can usually be finished in 4 years if both major and Pre-Pharmacy are started freshmen year. The combination of the Pre-Pharmacy program with a major in Athletic Training, Aviation, Dietetics, Engineering, Education, Nursing, Nutrition or Medical Laboratory Science will take longer. Because these majors include busy curricula and/or practicums, in most cases if you plan to combine one of them with Pre-Pharmacy, you will need at least 5 years of undergraduate studies to do so.

c. GPA

Since pharmacy school curriculum is considerably more challenging than any undergraduate curricula, you need to leave no doubt of your academic ability by excelling at the undergraduate level. Average cumulative GPA of recent regional pharmacy school matriculants: 3.55 (UMn) - 3.76 (NDSU).

2. PCAT

a. Timing

This rigorous exam is required by most schools – students planning to finish their undergraduate degrees in 4 years typically take the PCAT in July after their 3rd year (junior year) of college. While retakes are allowed, it is best to "do it right the first time".

b. Preparation

Since considerable time (20+ hours/week) needs to go into PCAT preparation, UND students are encouraged to take a lighter load (12 credits) during the spring semester of their junior year to give them room for reviewing and practice testing on their own.

c. Scores

Average national PCAT composite score for recent pharmacy school matriculants: 72nd - 85th percentile

3. Relevant Life Experiences

- a. Shadowing => 100+ hours
 - Get a good feel for the profession by shadowing pharmacists in different situations such as: hospital pharmacies, private pharmacies, chain pharmacies (Walgreens, CVS, etc.), or big box type pharmacies (Wal-Mart, Sam's Club, Target, etc.)
 - Be sure to include both rural and city experiences
- b. Work experience => can be considered shadowing if working in a pharmacy
 - Pharmacy schools expect you to spend considerable time working in health care settings. You need to get a job in a pharmacy or other medical setting where you give direct medical care to patients, have a chance to observe doctors, pharmacists, and other health care team members.
 - Be sure you have a supervisor observing you (most pharmacy schools require a letter of recommendation from a health care work supervisor).
- c. Community service, extracurriculars and activities showing leadership => these activities will set you apart!
 - Do things that you love, have a passion for, demonstrate your desire to serve others and give back, show your love of learning, let your leadership skills shine, etc.
 - These volunteer activities/paid jobs include, but are not limited to:
 - Lifeguards, first responders
 - Coaching/teaching sports (for park boards, travelling leagues, Special Olympics, etc.)
 - Camp counseling (church camps, day camps, medical camps, music camps, etc.)
 - Big Brother/Big Sister, Meals on Wheels, Relay for Life, etc.
 - Volunteering at your local city mission, free clinic, humane society, etc.
 - College organization participation or leadership (clubs, honor societies, sororities/fraternities, etc.)
 - College tutoring or TA positions
 - Medical missions trips (through college organizations, national organizations, or local churches)
 - Church work/sponsored activities (Sunday school teacher, youth worker, mission trips, etc.)
 - American Red Cross, Peace Corps
- d. Research => expected of students planning to attend top tier pharmacy schools
 - UND has numerous opportunities for doing undergraduate basic science research during summer breaks or the school year – you may apply for positions that either pay or give you college credit
 - Regional hospitals, labs, companies may offer summer opportunities
 - National labs (the NIH and the CDC) have some summer positions for college students
- e. Keep a log of all hours

Although formal documentation is not needed, you should keep a simple personal log for all experiences/work in a notebook – be sure to include dates, times, activities, impressions, and note any meaningful patients or experiences. You will also need to provide contact information for someone who witnessed you in each experience or circumstance, so make note of that as well!

4. Letters of Recommendation

- a. You will need 3-4 letters of recommendation or evaluation for most pharmacy schools.
- b. Letters need to address the personal attributes and academic abilities that make you a good fit for pharmacy school and the profession of pharmacy.
- c. Authors will have to include professors, work supervisors and peers who know you very well.

5. Legal Record

- a. Keep legal records clean. All minors and felonies will need to be disclosed on applications
- b. Keep university records clean. Any institutional actions for code of student conduct violations (behavioral, academic, legal, etc.) will need to be disclosed on applications.
- c. Keep personal social media sites clean (Facebook, Twitter, etc.). Be sure to demonstrate integrity, maturity, wholesomeness and good taste in all postings (verbal, photos, pictures, etc.)

6. Home State Residency

Pharmacy schools consider your home state of residency to be where you graduated high school and/or where your parent(s) live. Please note: *If you are not an ND resident, the only chance you will have to get into the NDSU PharmD program is if you attend NDSU as an undergraduate.*

Courses included in the **UND Pre-Pharmacy Program** fall into one (or more) of three categories. These categories are:

1. Requirements for most pharmacy schools
2. Good preparation for the PCAT
3. Good, additional elective preparation for pharmacy schools

The checklist below will help you keep track of your progress in the Pre-Pharmacy Program:

| UND Courses required by most pharmacy schools (*indicates courses helpful for PCAT preparation): | | | |
|---|--|----|-------------------------------------|
| __ | Biol 150, 150L General Biology I* | __ | Math* (choose one) |
| __ | Biol 151, 151L General Biology II* ? | | Math 146 Applied Calculus |
| | | | Math 165 Calculus I |
| __ | Chem 121, 121L General Chemistry I* | | Math 165-166 Calculus I and II |
| __ | Chem 122, 122L General Chemistry II* | | AP credit for Calculus |
| | | | |
| __ | Chem 341, 341L Organic Chemistry I* | __ | A Statistics course* (choose one) |
| __ | Chem 342, 342L Organic Chemistry II* | | Psyc 241 Psychological Statistics |
| | | | Soc 326 Sociological Statistics |
| __ | BMB 301 Biochemistry I* | | |
| | | __ | Psyc 111 Introduction to Psychology |
| __ | Phys 211, 211L College Physics I | | |
| __ | Phys 212, 212L College Physics II ? | | |
| | | | |
| __ | Anat 204, 204L Anatomy for Paramed Personnel* | __ | Econ 201 |
| | | | |
| __ | A Physiology course* (choose one) | __ | Engl 110 Composition I |
| | Biol 442, 442L Physio of Organs/Systems (for Bio majors) | __ | Engl 130 Composition II |
| | PPT 301 Human Physiology (for other majors) | | |
| | | | |
| __ | MBio 302, 302L General Microbiology* | | |
| UND electives good for pharmacy school preparation (take as many as desired – all are optional): | | | |
| __ | Biol 315 Genetics | __ | A Business course (your choice) |
| __ | Biol 315R Genetics Recitation | | Badm 101 |
| | | | Econ 202 |
| __ | Biol 341 Cell Biology | | Mgmt 300 |
| | | | |
| __ | Bio 390 Endocrinology | __ | Nutr 240 Fundamentals of Nutrition |
| | | | |
| __ | Bio 410 Molecular Techniques | | |
| | | | |
| __ | Bio 415 Genomics | | |
| | | | |
| __ | BMB 401, 403 Biochem II | | |
| | | | |
| __ | MBio 328 Introduction to Immunology | | |
| | | | |
| __ | PPT 315 Pharmacology | | |

Your course schedule at UND will vary depending on your major. Ultimately, all students, regardless of major, will be able to take the courses covering the content they need for the PCAT and pharmacy school. The chart below shows complete major and Pre-Pharmacy **science and math** course schedules for both **Biology** and **Chem/Biochem** majors. For students pursuing **other majors**, only the **science and math** Pre-Pharmacy courses are listed so they will need to “pencil in” their major requirements as well. Also, all UND students will need to add any additional major requirements, Essential Studies requirements, and other electives to each semester in the schedules below as needed or desired:

| | Freshman | Sophomore | Junior | Senior |
|------|--|--|--|--|
| Fall | Bio majors: <ul style="list-style-type: none"> • Bio 120 • Bio 150, 150L • Chem 121, 121L • Math 103 | Bio majors: <ul style="list-style-type: none"> • Chem 341, 341L • Bio 315 (Genetics) • Bio 315R (Genetics Recitation) • Bio 332 (Ecology) | Bio majors: <ul style="list-style-type: none"> • Physics 211, 211L • Bio 442, 442L • Chem 333, 333L (for minor) ? | Bio majors: <ul style="list-style-type: none"> • Bio 480 • Bio requirement** • Anat 204, 204L or Other Bio requirement** |
| | Chem/Biochem majors: <ul style="list-style-type: none"> • Chem 101 • Chem 121, 121L • Bio 150, 150L • Math 103 | Chem/Biochem majors: <ul style="list-style-type: none"> • Chem 341, 341L • Chem 361 • Chem 333, 333L • Physics 211, 211L | Chem/Biochem majors: <ul style="list-style-type: none"> • Chem 466 • Anat 204, 204L • Bio 315, 315R ? | Chem/Biochem majors: <ul style="list-style-type: none"> • BMB 401, 403 • Chem 492 or 495? • Bio elective** |
| | Other majors: <ul style="list-style-type: none"> • Bio 150, 150L • Chem 121, 121L • Math 103 | Other majors: <ul style="list-style-type: none"> • Chem 341, 341L • Anat 204, 204L • Your major requirements? | Other majors: <ul style="list-style-type: none"> • Physics 211, 211L • Bio 315, 315R or PPT 301 • Chem 333, 333L (for minor) ? • Your major requirements? | Other majors: <ul style="list-style-type: none"> • Bio elective** • Your major requirements? |
| | Everyone: Courses from Group 1* | Everyone: Courses from Group 1 or 2* | Everyone: Courses from Group 2 or 3* | Everyone: Courses from Group 2, 3 or 4* 2^o Pharm School Apps Due <i>(Submit to schools ASAP)</i> Interviews Begin <i>(Usually run October-February)</i> |
| Spr | Bio majors: <ul style="list-style-type: none"> • Bio 151, 151L • Chem 122, 122L • Math 146 | Bio majors : <ul style="list-style-type: none"> • Chem 342, 342L • Bio 341, 341L (Cell Bio) • Bio 312 (Evolution) | Bio majors: <ul style="list-style-type: none"> • Physics 212, 212L • BMB 301 | Bio majors: <ul style="list-style-type: none"> • MBio 302, 302L • Bio requirement** |
| | Chem/Biochem majors: <ul style="list-style-type: none"> • Bio 151, 151L • Chem 122, 122L • Math 146 | Chem/Biochem majors: <ul style="list-style-type: none"> • Chem 342, 342L • Chem 362 • Physics 212, 212L | Chem/Biochem majors: <ul style="list-style-type: none"> • Chem 467 • BMB 301 • PPT 301 | Chem/Biochem majors: <ul style="list-style-type: none"> • Chem 492 or 495? • MBio 302, 302L • Bio elective** |
| | Other majors: <ul style="list-style-type: none"> • Bio 151, 151L • Chem 122, 122L • Math 146 | Other majors: <ul style="list-style-type: none"> • Chem 342, 342L • PPT 301 or Bio 341 • Your major requirements? | Other majors: <ul style="list-style-type: none"> • Physics 212, 212L • BMB 301 • Your major requirements? | Other majors: <ul style="list-style-type: none"> • MBio 301, 302L • Bio elective** • Your major requirements? |
| | Everyone: Courses from Group 1* | Everyone: Courses from Group 1 or 2* | Everyone: Courses from Group 2 or 3* <i>Take a lighter credit load (12 credits) For PCAT prep or PCAT prep course</i> | Everyone: Courses from Group 2, 3 or 4* |
| Sum | <div style="border: 1px solid black; padding: 5px;"> Bio 341 is offered at UND during the summer – to help lighten their load during the regular school year, students may wish to do it after freshman or sophomore year (once Bio 150-151 and Chem 121-122 are completed) </div> | | WICHE Forms – AK, HI, NV res only <i>(Complete over Spring Break)</i> PCAT (1st one in July) 1^o Pharm School Apps Due <i>(Submit to PharmCAS by July 15th)</i> | |

* Courses in Group 1 are **required** for all majors. Courses from Groups 2, 3 and 4 are **options for Bio requirements/electives** or other **electives**.

Group 1: Eng 110 or 130, Psych 111, Comm 110, Econ 201, a Stats class (Psych 241 or Soc 326); additionally, the Chem/Biochem major also requires a level 2 proficiency in a Foreign Language (i.e., Span 101 and 102)

Group 2: Med 205, Nutr 240, Badm 101, Mgmt 300

**Group 3 Fall courses: Bio 315+R, Bio 378, Bio 410, Bio 364+L, Chem 333;

**Group 3 Spring courses: PPT 315

**Group 4 Fall courses: Bio 390, Bio 410, Bio 420, Bio 460, BMB 401, Mbio 328;

**Group 4 Spring courses: Bio 369+L, Bio 415