

# Pre-Pharmacy

## ***What is Pre-Pharmacy?***

Pre-Pharmacy is a pre-professional program at Cornell College for students interested in pursuing a Doctor of Pharmacy (PharmD) program. The program is designed to help students identify both prerequisites for admission and meaningful co-curricular experiences in and out of the medical field. The program is coordinated by Dimensions: The Center for the Science and Culture of Healthcare. Pre-Pharmacy students are expected to meet regularly with the Associate Director of Dimensions and are strongly encouraged to attend pre-health events sponsored by Dimensions on and off campus.

## ***Professional Resources***

The following resources offer extensive, reliable information on preparing for the healthcare field, in addition to those found throughout the Dimensions Guide to Pre-Physician Assistant:

- [Dimensions: The Center for the Science and Culture of Healthcare](#)
- [ExploreHealthCareers.org](http://ExploreHealthCareers.org)
- [Accreditation Council for Pharmacy Education \(ACPE\)](#)

## ***Pre-Pharmacy Guide Outline***

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## ***What is a Pharmacist?***

Pharmacists dispense prescription medication to patients and offer expertise in the safe use of prescriptions. They also may provide advice on how to lead a healthy lifestyle, conduct health and wellness screenings, provide immunizations, and oversee the medications given to patients (Bureau of Labor Statistics Occupational Outlook Handbook, 2015). The demand for trained pharmacy professionals has dramatically increased in recent years due to the rapid growth of the healthcare and pharmaceutical industries. The number of pharmacists in healthcare services is also increasing as pharmacists become more actively involved in decision-making for drug therapy and more knowledgeable of various insurance payment plans.

Pharmacists work in a variety of healthcare settings including community pharmacies, hospitals, managed care organizations, professional trade organizations, federal and state governments, and the pharmaceutical industry. Pharmacy graduates who want additional training may also complete a 1- or 2-year residency program or fellowship. Pharmacy residencies are postgraduate training programs in pharmacy practice. Pharmacy fellowships are highly individualized programs which prepare participants for work in research laboratories.

Some pharmacists managing their own pharmacy also obtain a master's degree in business administration (MBA). Pharmacists must earn a Doctor of Pharmacy (PharmD) degree and pass board examinations in order to practice as a licensed Pharmacist. [Pharmacy Technicians](#) also work in the pharmaceutical field.

[American Association of Colleges of Pharmacy \(AACP\)](#)  
[AACP Pharmacy Career Information](#)

## ***Cornell College Health Professions Committee (HPC)***

The [HPC](#) assists current students and alumni applying to professional programs in healthcare. The HPC process results in a Committee Letter of Recommendation sent to each school the student applies to, along with all other letters of recommendation. The Committee Letter of Recommendation is signed by the 4 members of the HPC:

- Barbara Christie Pope, PhD
- Craig Tepper, PhD
- Associate Director of Dimensions
- 1 Cornell College faculty or staff member of the student's choosing

The [HPC Committee Guide](#) is updated annually and should be reviewed by applicants before applying for the HPC. Students can find the most up-to-date version of the HPC Committee Guide on the Dimensions HPC website. Dimensions hosts workshops every year during 3<sup>rd</sup> or 4<sup>th</sup> block on the HPC and healthcare program application processes.

Applications are due to the HPC the summer before the intended application cycle begins. (For example, students hoping to start pharmacy school in fall 2017 will submit all application materials to the HPC in summer 2016.) Visit the Dimensions website to learn more about the HPC application process.

[Centralized Application for PharmD Programs](#)  
[Pharmacy College Application Service \(PharmCAS\)](#)

[Accredited PA Programs](#)

[ACPE Accredited PharmD Programs](#)

## PharmD Program Prerequisites

A specific major is not required for admission into a PharmD program. Students are advised to major in a discipline they are both most interested and able to excel in.

The following courses are required for admission to most PharmD programs:

<i>Prerequisites for the University of Iowa College of Pharmacy (2016 Cycle)</i>	<i>Course Equivalent at Cornell College</i>
4 semester hours of Rhetoric	ENG 111 (1 <sup>st</sup> Year Writing Course)
4 semester hours of Principles of Chemistry I	CHE 121 (Chemical Principles I)
4 semester hours of Calculus	MAT 121 (Calculus of a Single Variable)
3 semester hours of Statistics	STA 201 (Statistical Methods I)
General electives	Various
4 semester hours of Principles of Chemistry II	CHE 122 (Chemical Principles II)
4 semester hours of Principles of Biology I	BIO 141 (Foundations: Cellular Biology)
4 semester hours of Principles of Biology II	BIO 142 (Foundations: Organismal Biology)
4 semester hours of General Physics ( <i>A high school Physics course satisfies this prerequisite</i> )	PHY 141 (Introductory Physics I)
3 semester hours of Organic Chemistry	CHE 225 (Organic Chemistry I Lecture)
4 semester hours of Microeconomics	ECB 102 (Microeconomics)
3 semester hours of Organic Chemistry II	CHE 326 (Organic Chemistry II Lecture)
3 semester hours of Human Anatomy	BIO 329 (Human Anatomy & Physiology I)
3 semester hours of Human Physiology	BIO 330 (Human Anatomy & Physiology II)
3 semester hours of Biochemistry	BIO 334 (Biochemistry)
3 semester hours of Microbiology	BIO 326 (Microbiology)

*The following courses at Cornell College are prerequisites for some of the aforementioned PharmD prerequisites and/or are recommended for students pursuing PharmD programs:*

BIO 315 (Genetics)

CHE 327 (Organic Chemistry Laboratory)

**Note:** Each PharmD program has a specific list of prerequisites you must complete to be considered for admission. Most PharmD programs require additional courses than those specified in the table above. Visit both the [AACP Pharmacy School Admission Requirements](#) website and PharmD program websites regularly to explore program-specific prerequisites to ensure you've satisfied courses needed before applying. Be sure your Faculty Advisor is aware that you are Pre-Pharmacy. It is strongly recommended that you meet with your Faculty Advisor and [Dimensions staff](#) regularly to ensure you are meeting the requirements for both your major and PharmD programs in the proper sequence.

### AP Credit

PharmD programs have different rules when it comes to accepting AP credit as fulfillment of a prerequisite. If you enter Cornell College with AP credit, closely check the requirements of the PharmD programs of which you intend to apply.

### Community College Credit

Most PharmD programs prefer that applicants take all prerequisites at a 4-year institution. Students interested in earning credit at a community college should meet with their Faculty Advisor and the Associate Director of Dimensions *before* registration.

## ***What makes a competitive applicant for PharmD programs?***

PharmD programs are incredibly competitive, with many more qualified applicants applying each year than there are spots available. PharmD programs today are looking for well-balanced applicants. Most PA programs offer a [holistic review](#) of applications meeting the minimum GPA and Pharmacy College Admission Test (PCAT) score. Holistic review is an individualized way of assessing an applicant's capabilities by which balanced consideration is given to experiences, attributes, and academic metrics and, when considered in combination, how the individual might contribute value as a PharmD student and future pharmacist.

Becoming a competitive applicant for PharmD programs is a marathon, not a sprint. Students should not rush into a PharmD application cycle. The "right" time to apply for a PharmD program is unique for each applicant and representative of their individual aptitude for the sciences, experiences, and level of personal readiness to commit to the health profession.

Competitive PharmD program applicants:

- Earn high grades in prerequisites at a 4-year institution
- Demonstrate (from experience) they are aware of the pharmacist's role in today's medical climate as compared to other healthcare providers
- Apply to pharmacy school only when they feel they are ready to make a lifelong commitment to medicine and have the strongest application possible
- Research the schools they apply to assess "fit" and review prerequisites *before* applying
- Reflect on and make connections between experiences leading up to applying for pharmacy school
  - Can discuss what they learned *from* their experiences rather than what they *contributed*
  - Demonstrate how they've applied what they learned in earlier experiences to experiences that followed
  - Are able to easily demonstrate and explain why experiences were personally meaningful
  - Demonstrate they understand the impact and purpose of their responsibilities in each experience
- Have high science and cumulative GPAs
- Earn a high [PCAT](#) score
- Balance clinical experiences and other activities they are passionate about
- Can speak from experience when asked the question, "What makes a good pharmacist?"
- Can answer the question "Why do you want to be a pharmacist?" clearly and easily, demonstrating self-reflection and realistic expectations of the pharmacist role
- Have a parallel plan in mind: They know what they will do to demonstrate interest in and a commitment to medicine if they are not accepted into pharmacy school in their first application cycle.

Review the [AACP's Pharmacy School Admission Requirements](#) website to learn more about pursuing a career as a pharmacist.

**Cornell College Pre-Pharmacy Sample 4-Year Timeline\***

Year in School	Cornell College Course Satisfying Prerequisite	Additional Information
First Year	FYS CHE 121 CHE 122 BIO 141 BIO 142 ENG 111 1 additional English writing course	Your top priorities are becoming acquainted with your new surroundings, living arrangements, and course requirements. Students are strongly encouraged to get involved in co-curricular activities they are interested in or passionate about. (Activities do not all need to be medical-related.) New students should meet with the Associate Director of Dimensions at least once during their first year on campus. <ul style="list-style-type: none"> <li>• Many students will begin exploring opportunities to shadow healthcare professionals, volunteer in the community, and take part in student organizations. Hours spent in co-curricular activities should be tracked for the PharmCAS.</li> <li>• Students are encouraged to start thinking about summer as early as October**.</li> <li>• Students should review professional resources from this document and the Dimensions website to familiarize themselves with medicine and the medical field.</li> <li>• Attend relevant Dimensions Pre-Health Workshops.</li> </ul>
Second Year	PSY 161 STA 201 CHE 225 CHE 326 CHE 327 BIO 205 MAT 121	<ul style="list-style-type: none"> <li>• Seek opportunities to work closely with faculty members on research and other projects outside of class. Narrow down co-curricular involvement to experiences that are most meaningful to you and that you are most passionate about (even if it's not healthcare related.) Move up to leadership positions or take on more responsibility in co-curricular activities.</li> <li>• Start looking at medical schools more closely to identify unique requirements of schools you are interested in. Read in detail about the pharmacy school application cycles, the PCAT, and the Cornell College Health Professions Committee.</li> <li>• Attend relevant Dimensions Pre-Health Workshops.</li> </ul>
Third Year	CHE 202 PHY 141 CHE 334 BIO 329 PSY 282 SOC 101 BIO 315	<ul style="list-style-type: none"> <li>• Continue to work up to leadership positions or take on more responsibilities in co-curricular activities. Continue to shadow in the medical field and volunteer in the community.</li> <li>• Be sure you've completed at least the minimum amount of shadowing hours required by medical schools you plan to apply to.</li> <li>• Register for PCAT and prepare by taking several full-length practice exams. (Dimensions can help you identify PCAT prep resources.) Students should sit for the PCAT in April, May or June of their third year on campus if they plan to apply to start a medical school immediately following graduation.</li> <li>• Prepare for Health Professions Committee if you intend to enter pharmacy school immediately following graduation. Application deadlines should be verified with the Associate Director of Dimensions before the end of your junior year. (Example: Health Profession Committee applications are due summer 2016 if you hope to start pharmacy school fall 2017.)</li> <li>• Attend relevant Dimensions Pre-Health Workshops.</li> </ul>
Fourth Year	BIO 326 BIO 330 ECB 102  Complete graduation major/minor requirements.	<ul style="list-style-type: none"> <li>• Complete secondary applications and on-campus interviews.</li> <li>• Attend relevant Dimensions Pre-Health Workshops.</li> </ul>

\*You should always begin with the course most aligned with your current ability. It is better to start a few courses back and earn an "A" than to jump right into the prerequisite course and earn a "B" or "C". This sample timeline includes many required, recommended, and prerequisite courses for medical school. Always consult specific PharmD program prerequisites and with your Faculty Advisor before making course selections.

\*\*Pre-Pharmacy students hoping to enter pharmacy school immediately after graduation are strongly encouraged to use their summers wisely in preparation for PharmD programs. This includes conducting research, volunteering in the community, shadowing or interning in the field of medicine, and/or working in the healthcare field.