

# PRE-PHARMACY

## Introduction

Students interested in a career in pharmacy may pursue a four-year degree in any major along with completing specific prerequisites or students may complete only two or three years of study before starting pharmacy school, as long as the required prerequisites are taken. Students should stay in contact with the Pre-Medical Center from their first college year for assistance in planning appropriately for entry into pharmacy schools. Most students at Canisius choose the 4-year option majoring in either Chemistry (Health Professions Track), Biochemistry, or Biology. Majoring in other academic areas is also possible. Further information can be found in the catalog sections for each of those departments.

Students must gain a thorough understanding of the pharmacy profession, including shadowing or work experience in a pharmacy. Students should engage in co-curricular and service activities to build a high quality application. The Pharmacy College Admission Test (PCAT) has been retired and students no longer need to take an entrance exam to apply to pharmacy schools. In addition to the information in this section, please check the general information at the pre-medical and pre-health section of the catalog (<http://catalog.canisius.edu/undergraduate/academics/curricular-information/pre-professional-programs/pre-medical-pre-health-professions/>).

## Joint and Early Assurance Programs

Canisius has seven-year (3+4) joint degree programs with State University of New York at Buffalo School of Pharmacy and Pharmaceutical Sciences\* and D'Youville University School of Pharmacy, and both six- (3+3, PA campus) and seven-year (3+4, FL campus) joint degree programs with Lake Erie College of Osteopathic Medicine School of Pharmacy (LECOM requires competitive SAT or ACT scores). These programs allow students to earn both the bachelor degree from Canisius and the Doctor of Pharmacy degree from the partner institution. In these programs, students complete the Core Curriculum or the All College Honors Program and three years of the Chemistry Health Track major (courses approved by the chair of the Chemistry Department) or the Biology major (courses approved by the chair of the Biology Department). After the first year of pharmacy school, the bachelor degree is awarded by Canisius. Students also have the option to apply to a wide range of pharmacy schools under the 3+4 program. For more information regarding these programs and their specific course requirements, contact the Pre-Health advisor.

\* Please note that SUNY Buffalo 3+4 prerequisites require careful planning from the first year.

## Recommended Pre-Pharmacy Courses

Academic admission requirements vary substantially by pharmacy school, but usually require the following courses. These recommendations prepare a student to apply to multiple pharmacy programs.

### English

One year of English composition or the Honors Program equivalent:

Code	Title	Credits
Select one of the following:		
Option 1:		

ENG 111	Academic Writing	3
ENG 112	Writing about Literature	3
Option 2:		
HON 101	Honors English	3
and an Honors Literature course		3

## Biology

At least one year of general biology with laboratory. Many schools also require at least one year of anatomy/physiology (BIO 114-BIO 115 or BIO 324-BIO 340). Many programs also require microbiology with laboratory (BIO 307). Some programs require additional physiology. Please work with the Pre-Health advisor to determine coursework that aligns to your schools of interest.

Code	Title	Credits
General Biology		
BIO 111 & 111L	Introductory Biology I and Introductory Biology Laboratory I	4
BIO 112 & 112L	Introductory Biology II and Introductory Biology Laboratory II	4
Anatomy & Physiology		
Select one of the following:		
Option 1:		
BIO 114 & 114L	Human Anatomy and Physiology I and Human Anatomy and Physiology I Laboratory	4
BIO 115 & 115L	Human Anatomy and Physiology II and Human Anatomy and Physiology II Laboratory	4
Option 2:		
BIO 324 & 324L	Human Anatomy and Human Anatomy Lab	4
BIO 340 & 340L	Physiology and Physiology Laboratory	4
Microbiology		
BIO 307 & 307L	Microbiology and Microbiology Laboratory	4

## Chemistry

One year of general chemistry and one year of organic chemistry with laboratories:

Code	Title	Credits
CHM 111 & 111L	General Chemistry I and General Chemistry I Laboratory	4
CHM 112 & 112L	General Chemistry II and General Chemistry II Laboratory	4
CHM 227 & 227L	Organic Chemistry I and Organic Chemistry I Laboratory	4
CHM 228 & 228L	Organic Chemistry II and Organic Chemistry II Laboratory	4

## Biochemistry

One semester of biochemistry. Note that not all programs require biochemistry. Please work with the Pre-Health advisor to determine coursework that aligns to your schools of interest:

Code	Title	Credits
Select one of the following:		
Option 1:		
BIO 211	Biochemistry and Cell Biology I	3
BIO 212	Biochemistry and Cell Biology II	3
Option 2:		
BCH 301	Introduction to Biochemistry	3

HRP 498 is an internship in medical informatics. A medical scribe internship is also available.

HRP 498A is a medical (and pharmacy) service learning trip.

## Physics

One semester of introductory physics with laboratory. Not all schools require physics. A student's major may dictate the option they should select. Please work with the Pre-Health Advisor to determine coursework that aligns to your schools of interest:

Code	Title	Credits
Select one of the following:		
PHY 201 & 201L	College Physics I and College Physics I Laboratory	4
or PHY 223 & 223L	General Physics for Physical Science Majors I and General Physics for Physical Science Majors I Laboratory	

## Mathematics

One semester each of calculus and statistics. Some of the more competitive schools require one year of college level calculus (this would include taking MAT 112). Please work with the Pre-Health advisor to determine coursework that aligns to your schools of interest:

Code	Title	Credits
Calculus		
MAT 111	Calculus I	4
Statistics		
MAT 141	Inferential Statistics and Computers for Science	4
		or 3
or PSY 201	Basic Statistics for Behavioral Sciences	

## Additional Pre-Pharmacy Courses

Some schools recommend additional coursework from the following:

**Economics:** Many programs require one semester of economics (ECO 101 or ECO 102). Some programs specifically require or recommend microeconomics ECO 102.

**Public Speaking:** Some programs require one semester of oral communications or more specifically, public speaking (COM 201).

**Humanities and/or Social/Behavioral Science:** One to four semesters of psychology, sociology, U.S. history, theology and/or philosophy. Some programs specifically require psychology. Please work with the Pre-Health advisor to determine coursework that aligns to your schools of interest.

## Elective Courses

HRP 101 allows students to explore different health professions.

HRP 111 introduces students to medical terminology.

HRP 201 and HRP 202 allow students to explore areas of medicine in more depth.