

# BIOLOGY MAJOR — Pre-Pharmacy (Pre-Med option) 2020-21

The Biology major Pre-Medicine option is designed to allow students interested in medicine, pharmacy, physician assistant and some other professional programs to optimally meet the requirement for their professional goal in the context of their Biology major. **This document outlines the requirements for students interested in becoming a pharmacist** (see the other option documents for medicine, physician assistant and dentistry), and the listed courses will meet the prerequisites for most AACP accredited pharmacy schools in the U.S. and abroad. Students should always consult the requirements of all schools to which they plan to apply, and many pharmacy schools will not accept online prerequisite courses (especially those with online labs) or prerequisite classes from study abroad programs.

A 3.0 GPA is required to complete the Pre-Medical option. Courses used to satisfy option requirements also satisfy the Biology and Society, Organismal Biology, Physiology, Writing Intensive Course (WIC), Physics or Computer Science and Quantitative Applications and Experiential Learning or Integrative Biology Elective requirements in the Biology major. **Previous versions of this option are different and are tracked in MyDegrees. All courses and prerequisites are subject to change, and the listing of terms offered is based on projected Corvallis campus offerings.**

## Core Coursework:

Course	Pre(Co)requisites	Term	Credits
PHAR 201 Pre-Pharmacy Orientation		W	1
PHAR 210 Terminology of the Health Sciences		W, SP	2
PSY 201 <b>AND</b> PSY 202 General Psychology		F, W, SP, SU	4,4
ECON 201 Introduction to Microeconomics	MTH 111 recommended	F, W, SP, SU	4
PHL 205 Ethics <b>OR</b> PHL/REL 444 Biomedical Ethics	Sophomore standing for PHL/REL 444	F, W, SP, SU	4
PH 201, PH 202, PH 203 General Physics	MTH 112 (C-), taken in order	F, W, SP, SU	5,5,5

## Writing Intensive Course (Select one course from the following):

BI 319 Theory, Practice and Discourse in the Life Sciences	BI 221, 222, 223 (C-); ST 351	F, W	3
MB 385 Emerging Infectious Diseases & Epidemics	BI 221, 222, 223	W	3
HSTS 417 History of Medicine	Junior standing	F, W, SP	4

## Medicine, Health and Society (Select one course from the following):

ANTH 352 Anthropology, Health, and the Environment	Online only	F, W, SP	3
ANTH 383 Introduction to Medical Anthropology		F	3
BB 332 Molecular Medicine	Any biology course	F	3
BI 420 Viruses in Modern Society	BB 314 or BI 311	Alternate W	3
H 210 Introduction to the Health Care System		F, W, SP	3
H 225 Social and Individual Health Determinants		F, W, SP	4
H 312 HIV/AIDS and STI's in Modern Society		F, W, SP	3
H 333 Global Public Health		F, W, SP	3
HSTS 416 History of Medicine Pre-1800	Online only	W, SP	4
MB 330 Disease and Society	Online only	SU	3

## Human Anatomy and Physiology

BI 331-333 Advanced Human Anatomy and Physiology <b>AND</b> BI 341-343 Human Anatomy and Physiology Lab	BI 221, 222, 223 (C-); CH 233/263 (C-) Junior standing	F, W, SP (taken in order)	3,3,3 2,2,2
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## Experiential Learning or Biological Science/Psychology Elective Course (Select either Track I or Track II)

### Track I: Select any combination of 3 credits from the following

BI 309 Teaching Practicum <b>OR</b> BI 409 Advanced Teaching Practicum	By approval	F,W,SP	1-3
BI 401 Research and Scholarship	By approval	F,W,SP,SU	1-3

### Track II: Biological Science/Psychology Elective (select one course from the following)

BB 460 Advanced Cell Biology	BB 314 or BB 451 or BB 492 (C-)	?	3
BI 451 Functional Anatomy of the Human Muscular System	BI 331, 332, 333, 341, 342, 343	SU (by application only)	4
BI 485 Monster Biology	BI 311, 370 (can be concurrent); JR standing	W	3
BI 495 Disease Ecology	BI 370 (C-)	Alternate W	3
BHS/VMB 415 One Health in Practice	Junior standing	W?	3
MB 416 Immunology	BB 450 or BB 490	F	3
MB 436 The Human Microbiome	BB 314 or MB 302	SP	3
MB 480 General Parasitology	BI 211, 212, 213 (C-)	W	3
PSY 350 Human Lifespan Development	PSY 201, 202, sophomore standing	F, W, SP	4
PSY 381 Abnormal Psychology	PSY 201 and PSY 202, sophomore standing	F, W, SP	4
PSY 433 Psychopharmacology	Junior standing	?	4
TOX 411 Fundamentals of Toxicology	BB 350 or BB 450 or BB 490	F, SP	3
Z 425 Embryology and Development	BI 311 and BB 314; Junior standing	F?	5
Z 438 Behavioral Neurobiology <b>OR</b> BB 360 Introduction to Neuroscience	BI 221-223 (C-); CH 233/263 (C-) BI 221, 222, 223 (C-), CH 233/263 (C-)	SP F	3 3

## Additional Recommended coursework (not required to complete the option, but required or recommended by some pharmacy programs)

CH 324 Quantitative Analysis (this course will also complete the chemistry minor)
Additional coursework in the social sciences (ANTH, PSY, SOC). Please refer to specific pharmacy programs for individual requirements by school

## **Preparing for Pharmacy School**

As with any career choice, it is important to determine your motivation for pursuing pharmacy and to assess you for your eventual job duties. Experience in the field of pharmacy and other opportunities you involve yourself in are important for self-exploration, and to develop a strong application for pharmacy school. How you choose to get involved should be driven by your desires and interests. Pharmacy schools expect you to have developed an understanding of the field through shadowing, informational interviewing of pharmacists, and often through working as a clerk or pharmacy technician in a pharmacy. Additionally, students are expected to be well rounded, and to be active on campus and in the community through participation and volunteerism. Leadership is also valued by pharmacy schools. What you do to gain leadership skills is more important than the title of your role – be creative.

Some pharmacy programs require students to take the Pharmacy College Admissions Test (PCAT), however the OSU college of pharmacy does not. Applications also generally require letters of reference from a minimum of 3 individuals that can speak to your personality, academic strengths, acumen for pharmacy, character, and professionalism. Begin to develop relationships early so you will have letters ready for your application.

## **OSU Early Assurance Program**

OSU undergraduate students are eligible to apply for the Early Assurance Program (EAP), and to reserve a seat in the Pharm.D. program. EAP students have access to Pharmacy faculty, developmental experiences, and other preparation to begin pharmacy school. For more information on requirements and the application process, visit: <https://pharmacy.oregonstate.edu/eap-oregon-early-assurance-program>

## **Pharmacy Experience**

**Internships, volunteering, or working** in health care is important to begin early to gain experience and clarify career choices. See the Medical sections of the list: <http://ib.oregonstate.edu/professional/internship-research/intern-volunteer-list>.

**International Internships** through the OSU study abroad office are a great way to prepare you for work in a diverse population, improve language and/or cross-cultural communication skills, and gain clinical experience through clinic rotations.

See: <http://ib.oregonstate.edu/professional/international>.

**Shadowing** Shadowing a pharmacist is an important step in deciding if pharmacy is right for you. You may also interview pharmacists to get a better sense of what they do. You should seek out the opportunity to shadow or interview pharmacists in several settings and across specialties. To learn more about healthcare experience, see <https://science.oregonstate.edu/premed/healthcare-experience>

**Health Care Careers Summer Enrichment Programs** - See the following link for a searchable databases of summer programs to learn what it is like to work in a health care or research field:

<https://services.aamc.org/summerprograms/> and <https://explorehealthcareers.org/enrichment-programs/> and <https://www.nahp.org/student-resources/summer-opportunities>

**Summer Programs for underrepresented students:** There are summer programs at medical schools designed to help support rural, disadvantaged and underrepresented minority students to gain entrance to professional school. For example, the Summer Health Professions Education Program at <http://www.shpep.org/>

## **Campus Resources**

### **Pre-Pharmacy Society:**

Join the Pre-Pharmacy Society Facebook Group: "OSU Pre-Pharmacy Society"

The advisor for Pre-Pharmacy Society is Lauren Corwin. For more information on how you can get involved, or to join, please send an e-mail to [osuprepharmacysociety@gmail.com](mailto:osuprepharmacysociety@gmail.com)

### **Pre-Pharmacy Advising:**

make an appointment with your pre-pharmacy advisor here: <http://ib.oregonstate.edu/advising/appointments>.

## **State of Oregon Pharmacy Technician License**

Students may apply for a provisional pharmacy technician license that allows you to work as a pharmacy tech for up to two years in the state of Oregon. To become a certified pharmacy technician, you must pass a national licensing exam.

<https://www.oregon.gov/pharmacy/Pages/Pharmacy-Technician.aspx>

## **Study Abroad**

Although prerequisite professional school courses should not be done abroad, study abroad is a great opportunity and very feasible for pre-medical students. You can work with your advisor on how to schedule and apply these courses to your degree.

<http://ib.oregonstate.edu/professional/international>.

## **Research Opportunities:**

Research provides the opportunity to develop analytical and communication skills, an understanding of research methods, and the process of science. For these reasons, it is good preparation for the PCAT and a career in pharmacy

<http://ib.oregonstate.edu/professional/research-internships>.

## **Additional Pharmacy Resources**

### **American Association of Colleges of Pharmacy**

<https://www.aacp.org/resources/students/future>

### **American Pharmacist Association**

<https://www.pharmacist.com/>

### **Explore Health Careers**

<http://www.explorehealthcareers.org>

### **American Society of Health System Pharmacists**

<http://www.ashp.org>

### **Pharmacy For Me (is Pharmacy Right for Me?)**

<http://www.pharmacyforme.org>

### **Pharmacy College Application System**

<http://www.pharmacas.org>

### **OSU College of Pharmacy**

<http://pharmacy.oregonstate.edu>