

Biology Major - Pre-Optometry Guide (Pre-Med Option) 2023-24

Document available online at <https://ib.oregonstate.edu/undergraduate/advising/college-advising-guide>.

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 an optometrist** (see the other option documents for medicine, pharmacy, physician assistant and dentistry), and the listed courses will meet the prerequisites for most ASCO accredited optometry programs in the U.S. and abroad. Students should always consult the requirements of all schools to which they plan to apply, and many optometry schools will not accept online prerequisite courses (particularly those with online labs) or prerequisite courses taken during study abroad.

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 Computational 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	Description (credits)	Term(s)	Pre-requisites	Comments
BI 109	Health Professions: Medical (1cr)	Sp		Or approved substitute
PHAR 210	Terminology of the Health Sciences (2cr)	F, Sp	-	-
PSY 201 & PSY 202	General Psychology (4cr, 4cr)	All	-	-
ECON 201 OR SOC 204	Introduction to Microeconomics* (4cr) Introduction to Sociology (3cr)	All All	MTH 111	*Recommended
PHL/REL 444	Biomedical Ethics (4cr)	All*	Sophomore+ for PHL/REL 444	*BC: Science Technology and Society; Ecampus all terms but summer
PH 201, 202, 203	General Physics* (5cr, 5cr, 5cr)	All	MTH 112 (C-)	*Taken in order

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

Course	Description (credits)	Term(s)	Pre-requisites	Comments
BI 319	Theory, Practice, Discourse Life Sciences (3cr)	F, W, Sp	BI 221, 222, 223 (C-); ST 351	-
MB 385	Emerging Infections Disease & Epidemics (3cr)	W	BI 221, 222, 223	-

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

Course	Description (credits)	Term(s)	Pre-requisites	Comments
ANTH 352	Anthropology, Health, and Environment* (3cr)	F*	-	*Ecampus only, BC: Contemporary Global Issues
ANTH 374	Anthropology and Global Health (3cr)	Sp		
ANTH 383	Introduction to Medical Anthropology* (3cr)	F, Su	-	*BC: Contemporary Global Issues
BB 220	Cancer: Society's Malignant Shadow (3cr)	W	-	-
BB 332	Molecular Medicine (3cr)	F	BI 221 (C-)	-
BI 175	Genomes, Identities and Societies (3cr)	W	-	-
H 312	HIV/AIDS and STI's in Modern Society (3cr)	All	-	Sophomore+
H 332	Climate and Health (3 cr)	F		-
H 333	Global Public Health (3cr)	F*, W*	-	*Ecampus only
HSTS 417	History of Medicine (4cr)	All*	-	*Ecampus only, sophomore+
MB 330	Disease and Society (3cr)	Sp*, Su*	-	*Ecampus only

Human Anatomy and Physiology:

Course	Description (credits)	Term(s)	Pre-requisites	Comments
BI 331-333 AND 341-343	Advanced Human A&P (3cr, 3cr, 3cr) Advanced Human A&P, Lab (2cr, 2cr, 2cr)	F, W, Sp F, W, Sp	BI 221, 222, 223 (C-) & CH 233/263 (C-)	Junior+, must be taken in order and together

Experiential Learning or Biological Science/Psychology Elective Course (select one of two tracks below):

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

Course	Description (credits)	Term(s)	Pre-requisites	Comments
BI 309 OR 409	Teaching Practicum OR Advanced Practicum (1-3cr)	F, W, Sp	By department approval*	*See form here
BI 401	Research and Scholarship (1-3cr)	All	By department approval*	*See form here
BI 410	Internship (1-3cr)	All	By department approval*	*See form here

(Track II on Page 2)

Track II: Biological Science/Psychology Elective (Select one course from the following. See second page for more choices.)

Course	Description (credits)	Term(s)	Pre-requisites	Comments
BB 460	Advanced Cell Biology (3cr)	Sp	(BB 314 or BB 451 or BB 492) (C-)	-
BI 451	Functional Anatomy of the Human Muscular System (4cr)	Su*	BI 331, 332, 333, 341, 342, 343	*By application only
BI 485	Monster Biology (3cr)	W	BI 311, 370*	*Can be concurrent, junior+
BI 495	Disease Ecology (3cr)	W*	BI 370 (C-)	*Alternate even years
MB 416	Immunology (3cr)	F	BB 450* or BB 490*	*Can be concurrent, MB 417 lab is optional
MB 436	The Human Microbiome (3cr)	Sp	BB 314 or MB 302	-
MB 480	General Parasitology (3cr)	W	BI 221, 222, 223 (C-)	-
NUTR 417	Human Nutrition Science (4cr)	F	BB 450, BB 451 (C-)	-
NUTR 418	Human Nutrition Science (4cr)	W	BB 450, BB 451 (C-)	-
PSY 350	Human Lifespan Development (4cr)	F, W, Sp	PSY 201, 202	Sophomore+
PSY 381	Abnormal Psychology (4cr)	F, W, Sp	PSY 201, PSY 202	Sophomore+
PSY 433	Psychopharmacology (4cr)	F	-	Junior+
TOX 411	Fundamentals of Toxicology (3cr)	F	(BB 350 or BB 450 or BB 490)	-
Z 425	Embryology and Development (5cr)	F	BI 311, BB 314	Junior+
Z 438 OR BB 360	Behavioral Neurobiology (3cr) OR Introduction to Neuroscience (3cr)	Sp W	BI 221, 222, 223 (C-), CH 233/263 (C-) BI 221, 222, 223 (C-), CH 233/263 (C-)	- -

Additional Recommended coursework (not required for the option, but required by some optometry programs)

Course	Description (credits)	Term(s)	Pre-requisites	Comments
PH 332	Physics of Light, Vision, and Color	?	Recommended upper division standing and one year of university science	-
PSY 330	Brain and Behavior	All?	PSY 201, 202	-
Additional coursework in public health, business (BA 260 or BA 315), writing/English literature				

Information and Resources:

Optometry and Healthcare Experience: Applicants should have between 10 to 30 hours of observation under the supervision of an optometrist, preferably in more than one type of practice. Verify the number of required or recommended observation hours with individual optometry schools. Other medical and research experience is also helpful, though volunteering and job opportunities are the most valuable.

- **Shadowing:** and other [healthcare experience](#) is a good way to get exposure to the field and to decide if optometry is for you. Contact offices and clinics either in Corvallis or at home to see what opportunities are available.
- **Internships & Volunteering:** See the Medical and Health Professions sections of the [internships & volunteering list](#).
- **International Medical Internships** through the [OSU study abroad office](#) are great to prepare you for work in a diverse population, improve language and/or cross-cultural communication skills, and gain clinical experience through clinic rotations.
- **Manual Dexterity:** Optometry requires a great deal of manual dexterity and artistry as a profession, and students are expected to test and develop these skills during their undergraduate careers. Examples of activities include playing an instrument, engaging in three-dimensional art (ceramics, carving, jewelry making, etc.), or activities such as model building or origami. Students can and should engage in these activities at the OSU craft center, community courses or as personal hobbies.
- **Summer Camps:** There are many summer camps across the nation aimed at providing participants with opportunities to learn about the profession of optometry and the process of becoming an optometrist.
- **Health Care Careers Enrichment Programs:** See the following links for summer programs and searchable databases to search for summer opportunities related to health care or the research field.
 - [Summer Health Professions Education Program \(SHPEP\)](#)
 - [AAMC Summer Programs](#)
 - [Explore Health Careers Enrichment Programs](#)
 - [NAAHP Student Opportunities](#)
- **Study Abroad:** Although prerequisite professional school courses should not be done abroad, [study abroad](#) is a great opportunity and very feasible for pre-optometry students. You can work with your advisor on how to schedule and apply these courses to your degree.
- **Research Opportunities:** [Research Internships](#) 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 OAT and a career in optometry.
- **Leadership:** Health profession schools value leadership experiences. There are a variety of ways to gain leadership skills as an undergraduate, including officer roles in student clubs, coordination for organizations (i.e. non- profits and volunteer opportunities), or being a peer mentor for a department or college. What you do is more important than what your title is— be creative. You may also take leadership classes or earn a [leadership minor](#).

Optometry School Admissions: [Optometry Admission Test \(OAT\)](#) is an optometry admission test designed to provide optometry education programs with a means to assess program applicants’ potential for success. It is required for admittance into a Doctor of Optometry (OD) program. Also, it is important to begin establishing relationships with professors and professionals throughout your education. Applicants will generally need a minimum of three references, including a non-relative optometrist and a faculty member. References who can speak about you beyond a grade you received and can address your character, professionalism, and leadership will be particularly strong.

Additional Resources:

- [American Academy of Optometry](#)
- [American Optometric Association](#)
- [Association of Schools and Colleges of Optometry: Includes a list of all U.S. optometry schools](#)
- [Explore Health Careers](#)
- [Pacific University College of Optometry](#)
- [University of California Berkley Optometry](#)
- [Western University College of Optometry](#)
- [Optometry Centralized Application Service \(OptomCAS\): includes information for all optometry schools](#)