

BIOLOGY MAJOR — Pre-Optometry (Pre-Med Option) 2021-22

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 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 210 Terminology of the Health Sciences | | F, SP | 2 |
| PSY 201 AND PSY 202 General Psychology | | F, W, SP, SU | 3,3 |
| ECON 201 Introduction to Microeconomics (recommended) OR SOC 204 Introduction to Sociology | MTH 111 recommended | F, W, SP, SU | 4 |
| PHL 205 Ethics OR 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, SP | 3 |
| MB 385 Emerging Infectious Diseases & Epidemics | BI 221, 222, 223 | W | 3 |
| Medicine, Health and Society (Select one course from the following): | | | |
| ANTH 352 Anthropology, Health, and the Environment | | F, W, SP (Ecampus only) | 3 |
| ANTH 383 Introduction to Medical Anthropology | | F, W, SP (Ecampus only) | 3 |
| BB 220 Cancer: Society's Malignant Shadow | | W, SP | |
| BB 332 Molecular Medicine | BI 221 | 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 (Ecampus only) | 3 |
| HSTS 417 History of Medicine | Junior Standing | F, SP | 4 |
| MB 330 Disease and Society | | SP, SU (Ecampus only) | 3 |
| Human Anatomy and Physiology | | | |
| BI 331-333 Advanced Human Anatomy and Physiology AND 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 |
| 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 OR 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 (MB 417 is optional) (recommended) | BB 450 or BB 490 | F | 3 |
| MB 436 The Human Microbiome | BB 314 or MB 302 | SP | 3 |
| MB 480 General Parasitology | BI 221, 222, 223 (C-) | W | 3 |
| PSY 350 Human Lifespan Development (recommended) | PSY 201, 202, sophomore standing | F, W, SP | 4 |
| PSY 381 Abnormal Psychology (recommended) | PSY 201 and PSY 202, sophomore standing | F, W, SP | 4 |
| PSY 433 Psychopharmacology | Junior standing | F | 4 |
| TOX 411 Fundamentals of Toxicology | BB 350 or BB 450 or BB 490 | F | 3 |
| Z 425 Embryology and Development | BI 311 and BB 314, Junior Standing | F | 5 |
| Z 438 Behavioral Neurobiology OR BB 360 Introduction to Neuroscience | BI 221-223 (C-); CH 233/263 (C-) BI 221, 222, 223, (C-) CH 233/263 (C-) | SP W | 3 3 |
| Additional Recommended coursework (not required to complete the option, but required or recommended by some optometry programs) | | | |
| PH 332 Physics of Light, Vision, and Color | | | |
| PSY 330 Brain and Behavior | | | |
| Additional coursework in public health, business (BA 260 or BA 315), writing/English literature | | | |

Optometry at a Glance

Optometry is a healthcare profession specifically devoted to the correction of vision deficiencies. Optometrists examine people's eyes to diagnose vision problems and eye diseases. Most optometrists are in general or private practice. Some specialize in work with the elderly, children, or partially sighted persons. Some specialize in contact lenses, sports vision, or vision therapy.

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. To learn more about healthcare experience, see <https://science.oregonstate.edu/premed/healthcare-experience>

Internships & Volunteering: See the Medical and Health Professions sections of the internships & volunteering list at <http://ib.oregonstate.edu/professional/internship-research/intern-volunteer-list>.

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

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 hobbies on their own.

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 link for a searchable database of summer programs (including Summer Camps as mentioned above) to learn more about what it is like to work in a health care or research field.

<https://www.shpep.org/> (for underrepresented students)

<https://services.aamc.org/summerprograms/>

<https://explorehealthcareers.org/enrichment-programs/>

<https://www.naahp.org/public-resources/student-resources/student-announcements/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.

<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 OAT and a career in optometry.

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

Optometry School Admissions

Admissions Test

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.

<http://www.ada.org/en/oat>

References

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.

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.

http://agsci.oregonstate.edu/leadership_minior/

Optometry Resources

Pre-Optometry Advising:

<http://ib.oregonstate.edu/advising/appointments>

Additional Resources:

American Academy of Optometry: <http://www.aaopt.org/>

American Optometric Association: <http://www.aoa.org>

Association of Schools and Colleges of Optometry: Includes a list of all U.S. optometry schools: <https://optometriceducation.org/>

Explore Health Careers: www.explorehealthcareers.org

Pacific University College of Optometry: <https://www.pacificu.edu/future-graduate-professional/colleges/college-optometry>

University of California Berkley Optometry: <http://optometry.berkeley.edu/>

Western University College of Optometry: <http://www.westernu.edu/optometry/>

Optometry Centralized Application Service (OptomCAS): includes information for all optometry schools: <http://www.optomcas.org/>