

Biology Major - Pre-Medicine Option Guide (Physician) 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 a physician** (see the other option documents for optometry, pharmacy, physician assistant and dentistry). The listed courses will meet the prerequisites for most AAMC and AACOM accredited medical schools in the U.S. and abroad. Students should always consult the requirements of all schools to which they plan to apply, and many medical 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. The option includes two physiology tracks: a comparative physiology track which provides a deeper physiology background for pre-medical students who take anatomy and physiology in medical school, and a human anatomy and physiology track which is generally for pre-pharmacy, pre-physician assistant and other students that need this series as a prerequisite for professional school. **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)	W	-	-
PHAR 210	Terminology of the Health Sciences (2cr)	F, W	-	-
PSY 201 & PSY 202	General Psychology (4cr, 4cr)	All	-	*BC: Social Processes & Institut.
SOC 204 OR	Introduction to Sociology (3cr)	All	-	-
PHL/REL 444	Biomedical Ethics (4cr)	All*	Sophomore+ PHL/REL 444	*BC: Sci. Technology & Society; Ecampus all but summer term
PH 201, 202, 203	General Physics (5cr, 5cr, 5cr)	All	MTH 112	-

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 (C-)	-

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*, W*, Sp*	-	*Ecampus only
ANTH 374	Anthropology and Global Health (3cr)	Sp	-	-
ANTH 383	Introduction to Medical Anthropology (3cr)	F, Su	-	-
BB 220	Cancer: Society's Malignant Shadow (3cr)	Sp	-	-
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)	F, Sp	-	Sophomore+
H 332	Climate and Health (3cr)	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)	W*, Sp*, Su*	-	*Ecampus only

Physiology (Select one of the two tracks below):

Physiology Track I: Comparative Vertebrate Track (14 credits total)

Course	Description (credits)	Term(s)	Pre-requisites	Comments
Z 422 OR Z 425	Comparative/Functional Vert Anatomy (5cr) Embryology and Development (5cr)	F F	BI 221, 222, 223 (C-) & CH 332 BI 311, BB 314	- -
Z 431	Vertebrate Physiology I (4cr)	W	BI 22X (C-), CH 332 (C-)	-
Z 432 & Z 442	Vertebrate Physiology II and Lab (3cr+2cr)	Sp	Z 431 (C-)	-

Physiology Track II: Human Track (15 credits total)

Course	Description (credits)	Term(s)	Pre-requisites	Comments
BI 331-333 & 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-) 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: Biological Science/Psychology Elective (select one course from the following)

Course	Description (credits)	Term(s)	Pre-requisites	Comments
BB 460	Advanced Cell Biology (3cr)	Sp?*	(BB 314 or BB 451 or BB 492 (C-))	*Currently not taught
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-)	*Currently not taught
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)	F*	BI 221, 222, 223	*Ecampus only?
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, Su	PSY 201, PSY 202	Sophomore+
PSY 433	Psychopharmacology (4cr)	W	-	Junior+
TOX 411	Fundamentals of Toxicology (3cr)	F	(BB 350 or BB 450 or BB 490)	-
Z 371*	Vertebrate Biology (3)	F	BI 221, 222, 223 (C-)	*Z 372 lab is optional
Z 425	Embryology and Development (5cr)*	F	BI 311, BB 314	*If not used above, 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-)	- -

Information and Resources:

Preparing for Medical School: Resources on the College of Science [Preparing for Medical School website](#). Resources include the “Overview of the Premed Pathway,” “Premedical Guide,” procedures and deadlines for applying, FAQs, and a list of premed advisors.

Applying to Medical School

- **Application Seminars and Application Readiness:** Application seminars are presented by Premed Committee Coordinator(s) to help prepare students applying for medical school at the end of the academic year (or who are graduating). Go to the College of Science [Premed Application](#) page to review the steps for preparing to apply to medical school and to assess your application readiness.
- **Admission Test:** Medical school applicants must take the [Medical College Admissions Test \(MCAT\)](#).
- **References:** It’s important to establish relationships with professors and professionals early in your education. Applicants need a minimum four references that can speak beyond your grades and address your character and professionalism. Applicants should verify [letter requirements with individual schools](#).
- **Leadership:** Health profession schools value leadership experience as a way to develop interpersonal and team lead skills. There are a variety of ways to incorporate leadership experiences as an undergraduate like officer roles in a student club, coordinator for an organization, or being a peer mentor or ambassador for your college or department. Students may consider taking leadership courses or completing the [OSU Leadership Minor](#).
- **CASPer & AAMC PReview:** These are situational judgment tests required by many medical schools. They are used to assess non-academic attributes, such as empathy, motivation, collaboration, equity, professionalism, and ethics. Learn more about [CASPer](#) and [AAMC PReview](#).

Medical Experience:

- **Internship, work, or volunteering** early is important to gain experience and clarify career choices. See [Medical & Health Profession Internship and Volunteering](#).
- **International Medical Internships** through OSU study abroad are a great way to prepare you for work in a diverse population, improve language and cross-cultural communication skills, and gain clinical experience through rotations. See the [Abroad in Biology and Zoology page](#) for ideas and next steps.
- **Shadowing** and other healthcare experience is a good way to get exposure to the field and to decide if medicine is for you. Learn more about [healthcare experience here](#). Details about [OSU’s Medical Preceptorship program here](#).
- **Health Care Careers Summer Enrichment Programs** - See the following for searchable databases of programs in health care or research:
 - [AAMC Summer Programs](#)
 - [Explore Health Careers Enrichment Programs](#)
 - [NAAHP Student 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](#).

Campus Resources:

- **Pre-Med Listserv:** Join the pre-medical listserv to hear about opportunities for pre-med students. To join, send an email using your ONID account to premedclub-join@lists.oregonstate.edu and reply to the email response.
- **Pre-Med Student Organizations:**
 - **Pre-Med Society:** Society happenings include field trips, speakers, and info on volunteering/community service. E-mail: premedclub@oregonstate.edu
 - **Investigative Diagnosis:** Learn to take accurate and comprehensive patient histories and sharpen diagnostic skills. Email: diagnosis@oregonstate.edu
 - **M.A.P.S.** (Minority Association for Premedical Students) – Open to any student who supports minority efforts. Email: oregonstatemaps@gmail.com
 - **Pre-SOMA:** (Student Osteopathic Medicine Association) - For students interested in Osteopathic medicine (DO).
- **Study Abroad:** Although prerequisite professional school courses should not be done abroad, study abroad is a great opportunity and very feasible for pre-med students. You can work with your advisor on how to schedule and apply these courses to your degree. [Abroad in BI information here](#).
- **Research Opportunities:** Although not required by all medical schools, research helps develop analytical and communication skills, an understanding of research methods, and the process of science. For these reasons it’s good preparation for the MCAT and a career in medicine. [Information on getting research experience](#).