

Pre-Medical (Osteopathic, D.O.) Program in the Biology Department at Winthrop University

INTRODUCTION

Osteopathic medicine is a distinct pathway to medical practice in the United States. Osteopathic medicine provides all of the benefits of modern medicine including prescription drugs, surgery, and the use of technology to diagnose disease and evaluate injury. It also offers the added benefit of hands-on diagnosis and treatment through a system of treatment known as osteopathic manipulative medicine. Osteopathic medicine emphasizes helping each person achieve a high level of wellness by focusing on health promotion and disease prevention. Doctors of Osteopathic Medicine, or DOs, are fully licensed physicians who practice in all areas of medicine. Emphasizing a whole-person approach to treatment and care, DOs are trained to listen and partner with their patients to help them get healthy and stay well.¹

There are 33 accredited colleges of osteopathic information in the United States that operate 56 campuses in 33 states.¹ In South Carolina, The Edward Via College of Osteopathic Medicine operates a campus in Spartanburg. There are several other institutions operating campuses throughout the southeastern United States. Preparation for applying to an osteopathic medical school is no different than preparation for applying to an allopathic (M.D.) medical school.

Pre-Medical students at Winthrop select a major in one of the academic departments. Because of the large number of undergraduate biology and chemistry courses required or recommended by medical schools, biology is a popular major for Pre-Med students. For the best chance of graduating from Winthrop in four years and moving directly on to medical school, students should maintain an overall grade-point-average at or above 3.4 and a science GPA at or above 3.5 (out of 4.0), and take a sequence of courses designed to prepare them to take the Medical College Admission Test (MCAT) during the summer following their junior year. Students should be aware that such a path is extremely challenging and it is becoming more common for students to take a growth year between graduating and beginning medical school. This allows an additional year to complete the recommended coursework prior to taking the MCAT and initiating the application process. To strengthen their application and be better prepared for medical school, students should also seek out opportunities to gain clinical experience, participate in undergraduate research, perform community service, and develop their leadership abilities.

COURSEWORK

In consultation with a Pre-Med advisor, students should plan their schedules to complete as many of the courses listed below as possible prior to taking the MCAT and applying to medical school. This list is based on the concepts and content currently covered on the MCAT and the courses most commonly listed as prerequisites at medical schools. Students should carefully examine the preferences and requirements of all medical schools they plan to apply to and register for classes accordingly.

Biology:

Principles of Cell and Molecular Biology + Lab (BIOL 220/222)
Principles of Ecology, Evolution and Biodiversity + Lab (BIOL 221/222)
Genetics (BIOL 317) or Principles of Human Genetics (BIOL 316)
Human Physiology (BIOL 308)
Cell Biology with lab (BIOL 315) or Cell Biology lecture only (BIOL 222X or BIOL 220)

Chemistry*:

General Chemistry (CHEM 105)
General Chemistry Lab (CHEM 108)
Organic Chemistry I (CHEM 301)
Organic Chemistry II + Lab (CHEM 302/304)
Biochemistry I and II (CHEM 523/525 and 524) or Essentials of Biochemistry (CHEM 520)**

*Note that this sequence (with either Biochemistry option) may satisfy the requirements for a minor in Chemistry

**While the Biochemistry I and II sequence will provide more breadth and depth of coverage, the CHEM 520 option leaves more room for upper level BIOL electives, research, and/or an internship in the schedule (8 credit sequence vs. 3 credit course).

Physics:

General Physics I (PHYS 201/201L) or Physics with Calculus I (PHYS 211/211L)
General Physics II (PHYS 202/202L) or Physics with Calculus I (PHYS 212/212L)

Math (two of the following):

Algebra and Trigonometry for Calculus (MATH 101)
Applied Calculus (MATH 105)
Finite Probability and Statistics (MATH 141)-Highly recommended as one of the two Math courses (or MATH 341)
Applied College Algebra (MATH 151)

Calculus I (MATH 201/104)
Calculus II (MATH 202)
Statistical Methods (MATH 341)

Social Science:

General Psychology (PSYC 101)
Principles of Sociology (SOCL 201)

The courses above represent only the subset that we strongly recommend taking prior to the MCAT. The biology department offers many additional courses that will help prepare you for medical school. We encourage you to examine our course offerings and consult with a Pre-Med advisor to select the best combination of courses for you. You might also want to structure your coursework to allow you take advantage of the opportunity to earn a Master's degree with one year of additional coursework if you choose to take a growth year or in the event that you are not admitted in your first application cycle.

THE MCAT

The MCAT is the standardized entrance exam required by medical schools. For most students, it represents the most challenging component of the medical school application process. The "New MCAT" (adopted in 2015) is broken into four separately scored sections that are added to give a total score ranging from 472 to 528. A total score of 501.5 currently represents the 50th percentile. Students should familiarize themselves with the structure of the exam and the scores needed to be competitive at the schools they are applying to. The Association of American Medical Colleges (AAMC) website has excellent information and statistics about the MCAT as well as resources to assist you in preparing for and applying to medical school: <https://students-residents.aamc.org/applying-medical-school/taking-mcat-exam/>. A Pre-Med advisor can also provide information/statistics on competitive MCAT scores and GPAs at different medical schools.

While the courses listed above cover much of the content on the MCAT, none of them are specifically designed to prepare you for the MCAT. Thus, students should plan to spend an extensive amount of additional time preparing for the MCAT. There are several online resources available for free as well as books and other study materials available for purchase as well as online and classroom courses you can take. We highly recommend that you invest as much time and effort into your MCAT preparation as possible. Speak to one of the Pre-Med advisors about developing the best plan for you.

WHAT ELSE YOU CAN DO TO PREPARE FOR MEDICAL SCHOOL

The admissions process for medical school is highly competitive. Winthrop offers several opportunities for you to gain experience and skills that will help prepare you for medical school and distinguish yourself as an applicant. You should speak to an advisor about identifying opportunities at Winthrop and in the community. Opportunities available within the Biology Department include:

- Internships and Professional Development (BIOL 460, 461, 463)
- Undergraduate Research (BIOL 370, 371, 450H, 470, 471, 472)
- Bench to Bedside Program
- Tri-Beta Honors Society
- Honors Program and Honors Thesis
- Pre-Health Professions Student Organization Membership/Leadership
- SEA-PHAGES Program
- Health Professions Connection Blackboard Organization (provides supplemental advising and other helpful information, resources, and services for students planning to go into health professions)

Notes:

(1) <https://choosedo.org>