

## CAREERS IN MEDICINE (M.D. and D.O)

This handout should help answer some of your questions about preparing for a career in medicine. Although this handout is not intended to be a comprehensive source for premedical information, it does contain information regarding the minimal requirements needed to get into medical school, Miami's Premedical Studies Co-major, a hypothetical first year course schedule, a discussion on your choice of major, a section on applying to medical school, a few statistics on the success rate of Miami students getting accepted into medical school, and a list of resources that provide detailed information about the medical profession. Note that you do NOT have to sign up for the Premedical Studies Co-major: see information below. If you have any questions about Miami's premedical program, please contact Ms. Tailyn Walborn, Chief Premedical Advisor (walborta@miamioh.edu) and/or visit the website of the Mallory-Wilson Center (<https://www.miamioh.edu/cas/academics/programs/mwche>).

### A. MEDICAL SCHOOL COURSE REQUIREMENTS:

There are 158 standard (M.D.) and 31 osteopathic (D.O.) medical schools in the United States and Canada. The minimum academic requirements for entrance into most of these medical schools are essentially the same:

Medical School Requirement	Miami Equivalent
English - 1 year	One year or equivalent
Biology (with lab) - 1 year	BIO/MBI* 115+, 116
General Chemistry (with lab) - 1 year	CHM 141, 142 and 144, 145
Organic Chemistry (with lab) - 1 year	CHM 241, 242 and 244, 245 <b>or</b> CHM 251, 252 and 254, 255
Physics (with lab) - 1 year	PHY 161 and 162 <b>or</b> 191 and 192

\*BIO/MBI is a cross-listed course offered by the Departments of Biology and Microbiology. It needs to be stressed that while medical schools require only one year of biology, most successful applicants to medical school have had more background in biology.

+BIO/MBI 115 is not a required course for the Premedical Studies Co-major. If a student is not majoring in a biological science and doesn't plan to major in a biological science, they should consult with their advisor in regard to which course they could take in its place. If a student does not take BIO/MBI 115, they will need to take another biology course with a lab in its place. Please see Ms. Tailyn Walborn for a list of courses that could work as a substitute.

**Additional Medical School Requirements:** Although most medical schools have very similar minimum requirements, some medical schools require additional courses (e.g., biochemistry, psychology, anatomy) and many make specific recommendations to help you prepare for the rigors of their curriculum. You should look at the requirements for medical schools you may wish to attend to ensure you meet the requirements for those schools.

**Additional Courses needed for the MCAT:** The MCAT covers additional material beyond what has already been shown in the previous course list. As a result, premed students will also need to take the following courses to properly prepare for the MCAT.

<b>Additional Courses Needed for the MCAT</b>	<b>Miami Equivalent</b>
1 semester of Biochemistry	CHM 432
1 semester of Introductory Psychology	PSY 111 and 112
1 semester of Introductory Sociology	SOC 153
1 semester of Statistics	STA 261 or STA 301 or STA 368 or ISA 205

**Mathematics:** Some medical schools require up to a year of college mathematics. At Miami we recommend a year of college math that includes the semester of statistics students should take to prepare for the MCAT (STA 261 or STA 301 or STA/ISA 125 and ISA 223).

**Language:** With the exception of schools in Puerto Rico, medical schools do not have a language requirement. However, if you choose a major in the College of Arts and Science, Miami requires you to complete a foreign language. If you have a choice, we recommend that you take Spanish. Knowledge of this language is becoming increasingly important in much of the U.S. and could be useful to you in the practice of medicine.

**AP Credit:** While Miami will accept AP credit towards undergraduate requirements, you should use caution when using AP credit for science classes that will be used towards fulfilling medical school requirements. Some medical schools are reluctant to accept AP credit as a means of fulfilling their course prerequisites. This would immediately put you at a disadvantage when applying to these schools. In addition, some premed students later regret bypassing some of the required premed science classes for several reasons:

1. The Medical College Admission Test (MCAT), which is a required test to get into medical school, covers the topics that are presented in these courses. The MCAT is incredibly important in regard to gaining a medical school acceptance, and a stronger background in these areas should give you a better chance of getting a competitive MCAT score.
2. Doing well in high school AP science classes does not mean that you have the background necessary to do well in higher-level courses in that discipline at Miami.
3. Admission to medical school is very competitive, and if you can readily achieve an "A" in the introductory science class, this will improve your science GPA and your chances for admission. For many entering students, taking the AP science classes (biology, chemistry, and physics) should be viewed as a means to help you do well in these premed courses in college, not as a means to bypass these courses. It should be emphasized, however, that this advice does not apply to all students and does not apply to math, social science, and humanities AP credit. For an exceptionally strong student who plans to take upper-level classes in the sciences and can easily achieve "A's" in the science classes, using the AP credit may be the best option.
4. Many of the medical schools that will accept AP credit, accept it with the expectation that you will take another year of that subject to substitute for the AP credit. For example, if you get AP credit for physics with lab, they expect to see another year of physics with lab at a higher level.

**Other Information:** In order to enter medical school the year you graduate from Miami, you will need to take the MCAT at the end of your junior year, and all required premedical courses as well as MCAT-specific prep courses should be completed before you take the MCAT. Competition for places in medical school is very high and medical school admission committees choose among many talented students. The evaluation of candidates is based largely on objective criteria. High overall and science GPAs are important, and only academically strong students will be accepted. Other important factors are competitive MCAT scores, well-developed interpersonal skills, evidence of leadership potential (as shown by a few carefully chosen extracurricular activities), strong letters of reference, and exposure to medicine in a health care setting. Lastly, all medical schools require and choose between applicants based on in-person interviews.

Every year some bright and well-prepared students do not gain acceptance in spite of being intellectually and personally qualified for medicine. This is simply because they did not quite meet the admissions criteria at the high level set by that year's pool of accepted students. Sometimes persistence may be rewarded by acceptance in a later year, especially if the interim period is used constructively.

Early in your premedical program planning, you should: contact Ms. Walborn (106 Pearson Hall; phone: 529-3737; e-mail: [walborta@MiamiOH.edu](mailto:walborta@MiamiOH.edu)); attend planned premedical meetings on campus; and sign-up to receive e-mail from the Mallory-Wilson Center for Healthcare Education.

## **B. PREMEDICAL STUDIES CO-MAJOR:**

Miami's Premedical Studies Co-major is designed to provide students with the broad-based science background needed to prepare for advanced degrees in medicine as well as other healthcare related fields. The Co-major integrates regularly scheduled advising sessions with courses that cover fundamental concepts in the biological, physical, and social sciences. The academic courses required by the Co-major are essentially the prerequisite courses needed for admission into medical school and/or that cover material on the Medical College Admission Test (MCAT).

It should be noted that the Premedical Studies Co-major isn't a stand-alone major at Miami because it isn't a distinct academic discipline. Therefore, the Co-major must be taken in conjunction with a primary major that will provide the significant depth and breadth of a formal academic discipline. Since the Co-major isn't considered an academic discipline, there is no specific degree awarded for the Co-major. Instead, students receive the degree designation of their primary major.

Lastly, while we strongly encourage all premed students to enroll in the Premedical Studies Co-major, students are not required to complete the Co-major in order to apply to, or be admitted into, medical or any other health professional school. Premedical Studies courses as well as access to the advising services provided by the Mallory-Wilson Center for Healthcare Education and the Prehealth Advisory Committee are available to all prehealth students. For more information about the Premedical Studies Co-major, please contact Ms. Walborn ([walborta@MiamiOH.edu](mailto:walborta@MiamiOH.edu))

### **C. COURSE SELECTION AND PLANNING A CAREER IN MEDICINE:**

With a little planning, the course requirements for medical school can be completed in three years. Below is a course schedule of a typical premedical student during their first year. This schedule is strongly recommended unless the curriculum required by your major dictates otherwise.

Fall Term	Spring Term
BIO/MBI* 115+	BIO/MBI* 116
CHM 141 (141H)	CHM 142 (142H, 142M)
CHM 144 (144 H, 144M)	CHM 145 (145H, 145M)
ENG 111	ENG 225
PMD 101	PSY 111 and 112 or SOC 153 or STA 261
Elective	or Elective

\*BIO/MBI is a cross-listed course offered by the Departments of Biology and Microbiology (faculty from both departments are involved in the course).

+BIO/MBI 115 is not a required course for the Premedical Studies Co-major. If a student is not majoring in a biological science and doesn't plan to major in a biological science, they should consult with their advisor in regards to which course they could take in its place. If a student does not take BIO/MBI 115, they will need to take another biology course with a lab in its place. Please see Ms. Tailyn Walborn for a list of courses that could work as a substitute.

This curriculum will provide you the flexibility in your first year at Miami to explore a number of different majors in the sciences, social sciences, and humanities. At the same time, you will be on schedule to fulfill the requirements of medical school by the time you apply.

Additionally, with the above schedule, we do not recommend taking a math or language course as the elective during your first semester unless your major requires it, these subjects are areas of interest and strength for you, or you do not register to take BIO/MBI 115. For most premeds, taking CHM and BIO/MBI requires significant study time in order to do well. Electing to take a math or a language course, in addition to these science classes, for the first term, may prove too much. It is generally recommended that you delay fulfilling the language or math requirement until spring term of your first year or your sophomore year. Don't worry, you have time to complete these requirements, plus this schedule will allot sufficient time for socializing as well as study. This course schedule will allow you to maximize your ability to do well in the required premed classes, while at the same time giving you flexibility in choosing the major that is right for you.

Many students in college change majors and career goals during their first year; hence, it is in your best interest to start with a broader program that will allow you to select from a number of majors, rather than narrow your focus to a single major during your first year at Miami. Therefore, it is strongly recommended that the additional class (elective) you choose during your

first semester be of strong interest to you and also serve as a starting point for a potential major. If you are having a hard time filling this class spot, we advise that you consider a course in the social sciences or humanities areas. If you are certain about pursuing a specific major, then scheduling advice from the department of your major should take precedence.

#### **D. CHOICE OF MAJOR:**

As mentioned earlier in the handout, in order to be a Premedical Studies Co-major, you must first select another major in a specific academic discipline. Which major should you choose? Well, medical schools do not give preference for admission based on any specific major. In fact, placement of students in medical school is based on overall academic performance, with the expectation that you perform strongly in the sciences. Breadth of education is expected, and the pursuit of some discipline in depth is encouraged. A successful medical student must effectively acquire, synthesize, apply, and communicate information. These are skills that can be developed through a great variety of disciplines. Studies that include the humanities and social and behavioral sciences are strongly recommended, and the choice of pursuing either a BA or BS is yours and is a matter of your comfort level.

While you must be a strong student in the sciences (B+ or higher), you do not have to major in one of the sciences in order to be a competitive applicant for medical school. We recommend that you pursue a major that interests you and where you can excel. The majors that many premedical students choose to pursue are (listed alphabetically):

- Biology (BIO): This major gives students a strong background in understanding molecular biology, cell structure and function, how the human develops from a single cell, and how cells and organs of the body function and are regulated.
- Chemistry or Biochemistry (CHM): These majors give students a strong background in understanding chemistry and the biochemical activities that occur in humans. This should enhance their understanding of how pharmacological agents are used to treat diseases.
- Microbiology (MBI): Microbiology is the study of bacteria, viruses, and fungi. This major gives students a strong background in understanding molecular biology, bacterial cell function, and the basis for diseases in humans.
- Zoology (ZOO): This major gives students the same background in molecular biology, cell biology, and physiology as the Biology major, but allows them to focus more specifically on advanced animal biology.

Many premedical students choose to major in these areas because these are their areas of strength and interest. Depending on your interests and aptitude, one major may be more attractive to you than another. You might consider electing to obtain a minor outside of the sciences if you are a science major or elect to do a minor in the sciences if you major in one of the social sciences. Your goals and interests should govern what type of major you choose to pursue. Factors that you may want to consider before selecting a major are:

1. Are the upper-level courses of strong interest to you?

2. If you want to have research experience, does the department readily provide this opportunity for undergraduates? What are their requirements to participate in research?
3. Are you doing well in the courses associated with this major?
4. If you change your mind about entering the medical field, is this a major that you would be interested in pursuing at the graduate level?

#### **E. APPLYING TO MEDICAL SCHOOL:**

Most students come to Miami with the goal of entering medical school directly after their senior year. As a result, the process of applying to medical school begins during their junior year. If you also have this goal, you should plan on completing all premedical course work by the end of your junior year and also taking the MCAT in late spring of that same year. In order to ensure you are aware of the application process and timeline, please sign up to receive e-mail notices from the Mallory-Wilson Center (email: walborta@miamiOH.edu) at the start of your freshman year, and register to take PMD 301 during the second semester of your junior year.

#### **F. HOW MANY MIAMI STUDENTS GET INTO MEDICAL SCHOOL EACH YEAR?**

Over the past four years, 63% (284 out of 451) of Miami's undergraduate applicants have been accepted into medical school (approximately 80 medical schools have offered acceptances to our students during this same time span). If we just look at the undergraduate applicants that have achieved an overall GPA of at least 3.2, a science GPA of at least 3.2, and minimum MCAT scores of 50 percentile on each section of the MCAT, placement is even higher (72.6%). Most of the Miami students not accepted into medical school failed to meet at least one of the criteria outlined in the previous sentence. It needs to be stressed that these are minimal scores, and premedical students should strive to achieve at least a 3.40 overall GPA, a 3.40 science GPA, and above-average MCAT scores (50 percentile or higher).

While Miami cannot guarantee that any student will be placed into medical school, we will do everything possible to prepare you for medical school and help you with the application process. Please be advised that it is not just your academic record (science/overall GPA and reading skills), but also your extracurricular activities, medical experiences, and motivation for medicine that are judged by the medical school. Medical school admission committees do consider the quality of a school when judging a student's academic record. Miami University has a strong reputation for providing an education that prepares students well for the rigors of medical school. Our alumni who attend medical school are quick to praise the quality of their Miami University education.

#### **G. SOURCES OF INFORMATION IN PLANNING YOUR PREMEDICAL PROGRAM:**

1. **Ms. Tailyn Walborn, Chief Premedical Advisor**  
Ms. Tailyn Walborn is the full-time advisor for all Miami students looking to go to medical school. Whether you are a first- or fourth-year student, she is the advisor you should contact regarding all of your premedical questions.

2. **Thomas H. Mallory and David F. Wilson Center for Healthcare Education (106 Pearson Hall)**

The mission of the MWC is to enhance and enrich premedical education at Miami University by exposing students interested in a career in medicine to the current dynamics and issues of the medical profession and to the particular nature and reality of the practice of medicine. The MWC arranges preceptorship (internship) opportunities, sponsors speakers and symposia, promotes course offerings relevant to this goal, disseminates information of interest to students considering a career in medicine, and organizes some activities of the Mallory-Wilson Center Premedical Living Learning Community. The MWC is fully sponsored by the generosity of Miami alumni.

3. **Prehealth Advisory Committee**

The Prehealth Advisory Committee is a faculty committee that helps students prepare to apply to health professions schools. Committee members offer mock interview opportunities for students in the Co-major.

4. **“Medical School Admission Requirements”**

This on-line resource, published by the Association of American Medical Colleges (202-828-0416 or [www.aamc.org](http://www.aamc.org)), contains a list of the specific admission requirements of each M.D.-granting U.S. and Canadian medical school.

5. **“Osteopathic Medical College Information Book”**

This resource (either online or hardcopy), published by the American Association of Colleges of Osteopathic Medicine (301-968-4100, [www.aacom.org](http://www.aacom.org)), contains a list of the specific admission requirements of each D.O.-granting U.S. medical school.

6. **Websites**

- a) Standard Medicine: <http://www.aamc.org>
- b) Osteopathic Medicine: <http://www.aacom.org> or <http://www.am-osteo-assn.org>
- c) Mallory-Wilson Center for Premedical Education (Miami University): <http://miamioh.edu/mwche/>

7. **Premed Organizations**

There are multiple student-run organizations at Miami that are here to help you attain your goal of becoming a physician, so try to attend their meetings and events. Information on these organizations is available through The Hub, and many of their events are advertised through the Mallory-Wilson Center.

**H. TEN REASONS WHY YOU SHOULD CONSIDER ATTENDING MIAMI UNIVERSITY FOR YOUR PREMEDICAL EDUCATION**

- 1. **Miami premed students get into medical school** – 63% of *all* Miami first-time applicants are accepted to medical school. The acceptance rate rises to 72.6% for Miami students who earn at least a 3.20 GPA and score at least 50 percentile on each section of the MCAT.
- 2. **Miami premed students get good advice** - Miami has a full-time premedical advisor and a prehealth advisory committee who work together to help students prepare for and

apply to medical school. In addition, with our Premedical Studies Co-major, students can easily track their progress toward completing their medical school prerequisites.

3. **Miami premed students have many peers** - Miami has a large number of premedical students so it is very easy to find other students with similar interests and goals.
4. **Miami premed students are prepared for medical school** – With our Premedical Studies Co-major, Miami’s undergraduate curriculum prepares students for medical school, and our graduates excel in medical programs.
5. **Miami premed students have the opportunity to gain medical experience** - A large number of alumni physicians participate in our preceptorship program. This is an intensive program in which undergraduates work side-by-side with a physician for up to an entire week.
6. **Miami premed students have the opportunity to take classes that will broaden their understanding of the health care system** - We offer courses like “Medical Anthropology”, “Medical Sociology”, “Moral Issues in Health Care”, “Economics of Health Care Systems”, “Medical Spanish”, and “Current Issues in Medicine”.
7. **Miami premed students are broadly educated and well rounded** - The Global Miami Plan (<http://miamioh.edu/academics/core-curriculum/index.html>) offers the balanced education that students need to prepare them for medical school and for life. There are also numerous extracurricular activities that are fun, help you enhance your interpersonal skills, and help to make you a well-rounded person.
8. **Miami premed students have the opportunity to do research** - Miami undergraduate students have the opportunity to conduct research under the mentorship of our outstanding faculty. Students can work for pay or academic credit; they can apply for grants, and they can do internships in the summer: ([http://www.units.miamioh.edu/oars/undergrad\\_research/index.php](http://www.units.miamioh.edu/oars/undergrad_research/index.php)).
9. **Miami premed students will have teachers dedicated to undergraduate education** - Most Miami faculty members take pride in excellent teaching.
10. **Miami premed students get a bargain** - Miami ranks as one of the nation's top public universities (<http://miamioh.edu/about-miami/recognition/index.html>).