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Chapter 1: Introduction to the Health Professions Advising Office

Bryn Mawr is a wonderful setting to prepare for a career in the health professions. Medical schools, dental schools, schools of veterinary medicine, schools of public health and programs in other health professions favor students who have pursued a challenging, rigorous curriculum as undergraduates. None of the schools requires that applicants to major in a science; all seek students who are mature, motivated, curious, and hardworking and who have a demonstrated commitment to service in addition to a strong foundation in science. Applicants with a broad, liberal arts education are at an advantage in the admissions process.

The Health Professions Advising Office provides information and assistance to students and alumnae who are interested in careers in any of the health professions. We work with you throughout your Bryn Mawr career and beyond as you pursue academic, community service, and professional opportunities, and we will advise you throughout the application process to professional schools. Our office organizes many events, workshops, and meetings with admissions representatives and health professionals to help you learn about these fields. We also work closely with the leaders of several student-run organizations that sponsor sessions, meetings, and service projects related to health.

There is no formal prehealth major or academic track at Bryn Mawr. With careful academic planning, you can major in any field of study, complete the prehealth requirements, and pursue other academic goals, such as study abroad. Although most prehealth students gravitate to natural science majors, many prehealth students have majored in such fields as anthropology, English, French, history, political science, and psychology before embarking on successful health careers. The fundamentals of a Bryn Mawr College education - learning through conversation and collaboration, primary reading, original research and experimentation - provide an excellent foundation for a health professions career.

We are excited to begin working with you now to help you explore and prepare for a career in the health professions. We encourage you to read through this Guide for First and Second Year Students to gain additional resources. Please get to know the HPAO and join us in work with you in creating a plan that would work well for you.

Health Professions Advising Office
www.brynmawr.edu/healthpro
Canwyll House East
Telephone: 610-526-7350
The Health Professions Advising Office is open year-round from 9:00 a.m. to 5:00 p.m., Monday -Friday.

Gail G. Glicksman
Assistant Dean
Undergraduate Health Professions Advisor
gglicksman@brynmawr.edu

Dean Glicksman is eager to talk with students about their interest in exploring any of the health professions. She is available for individual appointments throughout the year; call the Health Professions Advising Office to schedule a meeting. During busy times, at the beginning at end of the semester, she has open office hours. Visit www.brynmawr.edu/healthpro for the current schedule.

Note that Dean Cummings works primarily with postbacs, but is also available to assist undergraduates.

Glenn N. Cummings
Associate Dean, Director of Health Professions Advising and
Director of the Postbaccalaureate Premedical Program
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The Health Professions Advising Office Website: This site provides information about the application processes to medical, dental, and veterinary school as well as links to health professions organizations and special interest sites. There are also sections about volunteer opportunities, financing professional school, and prehealth student organizations. We have an additional password-protected site with additional resources that are specific to Bryn Mawr. Some resources are for those in the process of applying to medical or dental school but there are resources for students at all stages. www.brynmawr.edu/healthpro

The Prehealth Listserv: Be sure to join the Prehealth Listserv, which the Office uses to send useful information, including announcements about special events on campus, research and internship opportunities, application deadlines, etc.

To subscribe to the Prehealth Listserv (and other Bryn Mawr college listservs) go to the website: mailman.brynmawr.edu. Choose the subscription page, scroll down to and select Prehealth-l. Complete the subscription form using your Bryn Mawr email address. After you confirm your subscription, your request will be sent to the listserv moderator for final approval. You can unsubscribe from the prehealth listserv at any time by logging into the subscription page, and completing a form at the bottom.

Health Professions Resource Room: The Health Professions Advising Office, located in Canwyll House East, has a variety of helpful resources including books about the admissions processes for medical, dental, veterinary and other health professions schools, a binder with admission statistics for Bryn Mawr applicants, and review books for the Medical College Admissions Test (MCAT) and Dental Admission Test (DAT). Some of these materials are available for overnight or weekend loans. In addition, we have a subscription to the Medical School Admission Requirements, published by the Association of American Medical Colleges. You can access it online in our resource room.

Health Professions Reserve Shelf, Collier Library: Additional copies of review materials to prepare for the MCAT and DAT are also available on the Prehealth Reserve Shelf in Collier Library. These items are for use only in the library.

Workshops, Panels, Speakers, Health Interest Groups: The Health Professions Advising Office sponsors a variety of informative workshops and panels throughout the year. The office also supports the activities of student-run Health Interest Groups. (See Appendix B Prehealth Student Organizations)

Important Information for International Students

While admission to medical, dental, and veterinary school can be challenging for even the most highly qualified students, international students who are not U.S. permanent residents face additional challenges. It is extremely difficult for a non U.S. citizen who is not a permanent resident to secure a place in medical, dental or veterinary school as well as many other health professional schools. Many medical, dental and veterinary schools will not accept applications from non-U.S. citizens.

In recent years, only 1% of the 19,000 students entering medical school nationally were non-U.S. citizens. Information about which U.S. medical schools accept international students can be found in Medical School Admissions Requirements (https://www.aamc.org/students/applying/requirements/msar/).

The small percentage of medical schools that will consider applications without reference to citizenship will usually require accepted international students to pay their tuition up front; sometimes requiring as much as four years’ tuition to be paid in advance of starting medical school. The cost of a four year medical education ranges from $150,000 - $250,000. Because non U.S. citizens are not eligible for U.S. government loans and other U.S. government-sponsored financial aid, the “up-front payment” requirement can make it very difficult for an international student to pay for medical school - even if she is accepted.

Note: For admissions purposes most medical schools do not differentiate between U.S. citizens and non-citizens who are permanent residents.
Chapter 2: Preparing for Medical School

INTRODUCTION

You may be surprised to learn that you can major in any field and go to medical school. Medical schools value liberal arts education as a way to develop strong critical thinking and communication skills as well as intellectual curiosity and cultural awareness.

There is no “best” major for premedical students. Although interest and facility in the natural sciences are essential for success in medicine, many students prepare for medical school and gain a firm foundation in the natural sciences while pursuing a major in the social sciences or humanities. Ultimately you should major in a subject that captures your intellectual passion. Some students combine majors with minors in different disciplines.

Because there is no premedical track at Bryn Mawr, students have the autonomy to develop their own academic plans in consultation with their dean, faculty advisors, and the prehealth advisor. You should consider your academic goals and explore the robust academic opportunities at Bryn Mawr and in the Tri-Co and Quaker Consortium. If your goals include spending a semester abroad it is important to meet with the prehealth advisor early in your college career to discuss possible academic plans.

BACKGROUND OF RECENT CHANGES TO MEDICAL AND PREMEDICAL EDUCATION

This is an exciting time to be entering the medical profession. Advances in technology such as genomics and bioinformatics and emphasis on public health issues highlight the need for physicians with a strong background in natural, behavioral, and social sciences as well as the humanities. Over the past several years, the Association of American Medical Colleges (AAMC) and the Howard Hughes Medical Institute (HHMI) have been reviewing medical school and premedical education to provide a conceptual and skill-based framework for lifelong learning and medical practice.

In 2009 the AAMC and HHMI released a report, "Scientific Foundations for Future Physicians (SFFP)," that outlined a set of scientific competencies and quantitative skills that should be mastered by premedical students and recommended innovative approaches to premedical education. AAMC also issued, “Behavioral and Social Science Foundations for Future Physicians,” which outlines the concepts in these disciplines physicians must cultivate in order to understand socioeconomic and cultural determinates of health and to address health care disparities. Concurrently the AAMC conducted a review of the Medical College Admission Test (MCAT) - the standardized test that all students must take in order to apply to medical school. As a result of the MCAT review and the AAMC/HHMI study, there were significant changes in content coverage and format to the MCAT that were implemented in the spring of 2015.

Your undergraduate career is an important preparation in many ways. At the most basic level, you will be meeting medical schools' specific course requirements and working to master material that you will be tested on via the MCAT; however, you will be doing much more than that. You will be developing critical thinking and other academic skills that will lead to your success in medical school and gaining extensive exposure to ideas and experiences that will infuse your life as a medical professional. Further, you will be gaining important intrapersonal and interpersonal competencies through engagement in extra-curricular activities on campus and in the community.

Although learning about revisions to medical school admission requirements might seem daunting at first, be assured that the faculty, deans, and prehealth advisors are working together to ensure that you get the best education possible at Bryn Mawr. For example, members of the science faculty have been exploring ways to collaborate in developing competency-based approaches to introductory courses. Our science courses already prepare students well given the recommended changes to medical and premedical education and to the MCAT.
WHAT DO THESE CHANGES MEAN FOR ME AS A MEMBER OF THE CLASS OF 2020?

You will be doing your premedical studies during a time of evolution in the premedical requirements. While it is not clear yet exactly what effects these changes will have on specific premedical course requirements at individual medical schools, Bryn Mawr is very involved in making plans for these possible changes. Although a new MCAT was implemented in 2015, it will take some time for medical schools to decide if they will implement changes to their requirements, and not all schools will make changes. We recognize that there will be some uncertainty moving forward, but a plan to take the traditional course requirements for medical school admission will be a productive way to begin your college career. Stay in touch with the prehealth advisor and your dean who can provide advice and support in choosing classes while you explore careers in medicine.

REQUIRED PREMEDICAL COURSES VS. COMPETENCY-BASED APPROACH TO MEDICAL SCHOOL ADMISSIONS: WHAT DOES THIS MEAN?

Historically medical schools have required that students complete a specific set of courses, often referred to as the “core” or “traditional” premedical requirements prior to applying to medical school. Recently some medical schools are changing their approach and, instead of specifying course requirements, are outlining conceptual content areas of knowledge in the natural and social sciences and the humanities as well as quantitative reasoning skills that students must demonstrate mastery of prior to application. Some medical schools using competency-based approaches provide suggested course lists, many of these closely parallel the “traditional” premed course requirements.

WHAT ARE THE TRADITIONAL CORE PREMEDICAL COURSE REQUIREMENTS?

Currently for most medical schools, by the time you apply you must have completed the following courses:

• ONE YEAR OF BIOLOGY WITH LAB
• ONE YEAR OF GENERAL CHEMISTRY WITH LAB
• ONE YEAR OF ORGANIC CHEMISTRY WITH LAB
• ONE YEAR OF PHYSICS WITH LAB
• ONE YEAR OF ENGLISH (one semester of the Emily Balch Seminar plus one additional writing intensive course that can be completed at any time prior to graduation)

The MCAT implemented in 2015 added an interdisciplinary section that covered topics from psychology, sociology, and the biological basis of behavior. Although some medical schools already require coursework in behavioral science, it is possible that other medical schools will add a required course in psychology, sociology, or behavioral science. It is important to meet with the prehealth advisor each semester prior to course preregistration to discuss your curricular plans in the context of evolving changes in premedical course requirements.

We have prepared samples of course plans showing how other Bryn Mawr students have sequenced their prehealth requirements with their major requirements and their College-wide Requirements. Visit the HPAO website to review these samples. www.brynmawr.edu/healthpro

ADDITIONAL PREMEDICAL COURSE REQUIREMENTS AND SPECIAL SITUATIONS

Note that many medical schools require additional science and math courses; for example, several medical schools require or strongly recommend a course in biochemistry (see below). Although only a small percentage require statistics, almost all medical schools believe that having knowledge of basic statistical principles is essential for evaluating scientific studies.

Science: Many medical schools require or strongly recommend one or two additional upper-level science courses. A listing of these schools and their requirements can be accessed at the Health Professions Advising Office website (http://www.brynmawr.edu/healthpro/info/advanced.html). We advise non-science major premedical students to take 1-2 upper-level biology courses in addition to the core premedical science requirements, and one of those courses should be biochemistry.
AP/IB credits in the sciences: Because medical schools want to see that you can handle college-level science and laboratory work, at a minimum you should take as many college-level science courses as are listed in the premedical requirements. If you have AP/IB credits, this often means that you may take upper-level science courses instead of introductory courses, but sometimes the science departments will still recommend that students take the Bryn Mawr introductory science courses. If you have AP/IB credit in science, speak to your dean and to the prehealth advisor about the best course choices for your individual situation.

Math and statistics: The math requirements vary from medical school to medical school. Some schools do not require any math classes; many require one semester of calculus; some require a course in statistics; and very few require two semesters of calculus. Approximately 35% of the US medical schools have math requirements. A listing of these schools and their requirements is posted on the Health Professions Advising Office website (http://www.brynmawr.edu/healthpro/info/advanced.html). You should discuss whether or not to take calculus with your dean and the prehealth advisor. If you are thinking about majoring in a science, calculus, and/or statistics may be an important course to take. Do not feel that you must enroll in Math 104 immediately; speak to the prehealth advisor first, as you typically cannot enroll in this course in the fall semester. Several academic departments (psychology, sociology, to name a few) have statistics courses as a part of their major requirements. Please note that for the medical schools that have a statistics course requirement, be aware that some state medical schools will only accept statistics courses taught in a math department. Check with the prehealth advisor to see if your home state medical schools have a specific statistics requirement and for help considering what might be the best choice for your situation.

AP and IB credits in math: Most medical schools will accept AP/IB credits to satisfy the premedical math requirement. A few state medical schools, including some from the University of California system, however, will not accept AP or IB credits for their calculus or statistics requirements. If you have AP/IB credit for calculus or statistics, please see the prehealth advisor for more information about math requirements for medical schools in your home state. If you decide to take a math class at Bryn Mawr, you might want to consider taking this while the concepts are fresh in your mind.

Miscellaneous other course requirements: Although medical schools have general requirements for course work in the humanities, some state medical schools, however, have very specific course requirements in social sciences and humanities. The Medical School Admissions Requirements (MSAR) https://www.aamc.org/students/applying/requirements/msar/, published online annually by the AAMC, includes information about course prerequisites. You should meet with the prehealth advisor early in your college career to review course requirements for medical schools in your home state.

THE IMPORTANCE OF STATE RESIDENCY IN THE ADMISSIONS PROCESS

Your state of residence is an important factor in the medical school admissions process. Many medical schools reserve the majority of their seats for in-state residents. You should plan your premedical course work around the requirements for your state medical school because the costs of that medical school may be more reasonable and your chances of being accepted there may be much better than your chances of being accepted to other schools.

HOW SHOULD I FIT THE REQUIREMENTS INTO MY SCHEDULE? WHAT CLASSES SHOULD I TAKE FIRST?

There are many ways to complete the premedical requirements. You should work out the approach that would work most effectively for you by talking with your dean or faculty advisor and with the prehealth advisor. Your primary goal, while at Bryn Mawr, should be to explore your diverse intellectual interests and to take advantage of special academic opportunities. You may complete the premedical requirements in the next four years or after graduation. You will never have a chance to repeat your liberal arts education at Bryn Mawr.

Planning is essential to ensure that you complete the prehealth requirements while achieving your other academic goals. Would you like to study abroad for a semester? Would you like to take a 360?
Are you attracted to a major that would have little overlap with the prehealth requirements? Have you always wondered about some fields that weren't open to you while you were in high school?

**Considering science courses:**

- Try to be realistic about your preparation for math and science courses. Consider the number of hours you'll be in class and the hours you'll need for other responsibilities. We urge you to read the Dean's Office information about selecting classes. Of special interest are the FAQ's about selecting science and math courses and about the advisability of taking two lab courses in your first semester. Work with your Dean as you consider your academics. As questions come up about prehealth requirements, consult with the Health Professions Advising Office.

- In terms of science courses, if you are considering majoring in a science, you should consider taking a course in that subject first. This will give you the opportunity to start college immersed in a discipline that you enjoy and to explore a possible major.

- If you are not considering a science major, all things being equal, you might want to consider starting in general chemistry, because several chemistry courses are required and they must be taken in sequence (general chemistry – organic chemistry – biochemistry).

**Keeping your options open?**

If you are not sure whether you want to prepare for medical school at all but want to "keep your options open," remember that the best way to keep those options open is to perform well. If that means postponing your first science course until the sophomore year and possibly postponing your application to medical school, so be it. By waiting until you are more committed to a career in medicine to start taking science courses, you'll ensure that you will be more experienced as a student when you tackle your premed courses. Some students choose to apply to medical school after graduation. This enables them to take full advantage of the opportunities that Bryn Mawr provides without rushing through the premedical requirements.

**TIME FRAME TO MEDICAL SCHOOL: MANY APPROACHES**

There are many approaches to completing the courses and developing the competencies necessary to apply to medical school. Although individuals must complete these courses before applying to health professions schools—or in some cases before taking the discipline-specific standardized admissions test—they aspire to begin their graduate study at different stages of their lives. A majority of Bryn Mawr students take a minimum of one year after graduation to work in biomedical or clinical research or to participate in a service program before attending a health professional school; they apply during the summer after senior year and pursue these other opportunities during a 'glide' year (sometimes more than one). Far fewer of our students apply after junior year to go straight into health professions school. Others discover their interest in the health professions after college so they take the premedical courses through a structured academic postbaccalaureate program. Careers in the health professions are both demanding and rewarding, so take the time to find the best fit for you.

The timeline for applying to medical school is much more flexible than it was a generation ago. Since then, the average age of students matriculating at medical school has increased from 22 to 24. Prehealth students have much greater flexibility in preparing themselves for medical school compared to the aspiring physicians of the past.

If you wish to position yourself to enter medical school immediately after graduating from Bryn Mawr, you must complete your premedical requirements and any other courses that you may need to prepare you for the MCAT by the end of your junior year and then take the MCAT and submit your application during
the summer before your senior year. The medical school application process takes more than one year. (See the medical school application time table at the end of this section.) This requires careful planning.

Many students plan to complete the premedical requirements over a longer time frame. At many colleges, a majority of those applying to medical school have decided to plan for a “glide year.” Some of these applicants might prefer the extra time to delve more broadly and deeply into other areas of the liberal arts curriculum or to study abroad for a full year. For some, the pace of juggling the pre-medical courses during their first year or so of college might feel a bit hectic.

Students who plan for a “glide year” have worked have worked as clinical research assistants or laboratory technicians at medical schools or served in the Peace Corps, AmeriCorps or for Teach for America. Students who engage in other activities for one or two years do not find that they are older than most students in their medical school classes. For a variety of reasons, there is a range in the age at which students begin medical school. Medical schools consider each applicant without regard to age. They value candidates who have maturity and work experience. Applicants acquire these qualities and experiences in different ways and on different timetables.

We encourage you to talk with your dean and/or faculty advisor and with the prehealth advisor and develop a plan that works most effectively, given your interests, strengths, experiences, and other considerations. We welcome the chance to work with you as you consider your options and develop your plan.

MORE ABOUT CHANGES TO THE MCAT

As noted above, the MCAT is a computer-based standardized test required for admission by all medical schools. It assesses scientific problem solving skills and critical thinking abilities in standard premedical science courses; in addition, it now tests basic knowledge in biochemistry, behavioral sciences, and quantitative reasoning.

There are multiple ways to learn the biochemical concepts that will be included on the MCAT. As noted earlier, the Bryn Mawr science faculty has reviewed the new MCAT information, and the Bryn Mawr 4-semester chemistry sequence will provide a foundation in general and organic chemistry, and basic biochemistry. You must complete the general and organic chemistry courses before taking the MCAT. Although some students who are very strong in science might be able to supplement their knowledge of biochemistry with intensive self-study, it is advisable to complete a semester of biochemistry before taking the MCAT. There are multiple biochemistry courses in the Bryn Mawr and Haverford curricula, so it will be important to talk with the prehealth advisor, your dean, and for science majors, your major advisor, about which biochemistry course to take. Please note that if you want to go to medical school directly from college and you want to take a semester-long biochemistry course before taking the MCAT, you must begin general chemistry as a first-year student.

To prepare for the new MCAT section on Psychological, Social and Biological Foundations of Behavior, you may want to take a psychology course and a course that introduces basic statistics. (Please see the section above for essential information about considering math and statistics courses.)

HOW CAN I LEARN MORE ABOUT THE MCAT?

Each fall the Health Professions Advising Office holds an MCAT information session at which we review the format of the test and discuss a variety of study options. Usually junior and senior premedical students attend the information session, but all students are welcome to attend. Premedical students typically take the MCAT in the late spring or early summer of the year that they are applying to medical school.

You can access an interactive tool and download a document describing the content tested in the MCAT on the AAMC’s website at https://students-residents.aamc.org/applying-medical-school/article/understand-mcat-exam/
I WANT TO STUDY ABROAD. WHAT EFFECTS WOULD THAT HAVE ON MY COURSE SCHEDULE?

It is possible to study abroad, complete the premedical requirements, and apply to medical school. Many students who study abroad during the academic year do not go to medical school directly from college. Typically, they use senior year as a time to complete one or two remaining premedical course requirements. With the significant amount of new content coverage in MCAT 2015, it is likely that most students who study abroad during the academic year will apply after graduation, which means they will be working during the medical school application year. One approach to consider is to study abroad during a summer, when you would not otherwise be taking your premedical requirements.

IMPORTANT CONSIDERATIONS

1. We advise most students not to take two lab sciences during the first semester of their first year. Students differ in many ways. Typically, most students need time during their first year to get adjusted to the Bryn Mawr workload and to explore a variety of disciplines, extracurricular activities, and volunteer opportunities. For some students with a strong grounding in the natural sciences, this might focus on their strengths. Each student has a different set of needs to consider. We urge you to discuss this with your Dean and to review the Dean’s Office FAQ’s about selecting science courses, especially the discussion of the pros and cons of taking two lab courses your first semester.

https://www.brynmawr.edu/welcome/enrolling-faqs

2. Do not rush through the requirements and do not overextend yourself academically. Take advantage of special opportunities such as exploring new academic disciplines or studying abroad during the academic year. With careful planning it is possible to pursue your many interests and to complete the premedical requirements.

3. Take few (or no) credit/non-credit courses. It is best to take all your courses for a grade because medical schools look for applicants who have consistently challenged themselves throughout the undergraduate years. You must take all of your premedical requirements for a grade.

4. Medical schools prefer that you take all your premedical requirements at Bryn Mawr (or at Haverford). If you feel you must deviate from this pattern please talk to your dean and to the prehealth advisor about the best options.

5. You cannot take any premedical requirements abroad.

LEARNING ABOUT MEDICINE THROUGH EXTRACURRICULAR ACTIVITIES AND COMMUNITY SERVICE

Medical schools are looking for more than strong academic qualifications. Physicians have to be smart--but they also have to be good listeners, capable leaders, team players, ingenious time managers, altruistic, flexible, compassionate, culturally sensitive . . . and more!

There are any number of ways you can demonstrate your compassion, your leadership skills, and your ability to work well with people of diverse backgrounds. Get involved in campus activities--choose to do things that you feel passionate about. You can enhance your skills at working collaboratively and assuming leadership roles through involvement in campus clubs, athletics and part-time jobs; try to view all of your activities as learning opportunities.

You should engage in activities outside of academics. Be careful not to become over-extended. Depth and continuity of a few activities are preferable to joining many activities with minimal involvement. Bryn Mawr has many opportunities for students to develop leadership skills, so take advantage of them.

At its core, medicine is a service-based career. Physicians must be able to establish rapport and trust with patients and their families. You can strengthen your ability to communicate with people from different backgrounds and cultures through community service activities. This can also offer you a chance to feel good about making a difference for others.
As a new college student you may want to participate in one of the many established community service programs through Civic Engagement (CE) [https://www.brynmawr.edu/lilac/civic-engagement](https://www.brynmawr.edu/lilac/civic-engagement). For example CE sponsors the Belmont Charter School Monitoring Program, which is an afterschool tutoring program for 2nd-8th grade students. Another popular CE-sponsored program is the Volunteer Income Tax Assistance Program (VITA) in which students are trained to help low-income residents in the Norristown community to prepare their income tax returns.

Before applying to medical school you must gain some experience working in clinical settings. Our office and CE established a directory of health care volunteer opportunities in the region. Read over the healthcare directory and then feel free to discuss possible volunteer opportunities with the prehealth advisor. [http://healthvolunteer.blogs.brynmawr.edu/](http://healthvolunteer.blogs.brynmawr.edu/)

Becoming a physician and practicing medicine requires significant personal sacrifice and commitment. You should definitely explore medicine from as many perspectives as possible to be certain that it is the right career for you. Here are some ways to start your exploration

- Take advantage of the externships available through the Career and Professional Development (CPD) Office. These are winter and spring break opportunities for you to “shadow” a Bryn Mawr or Haverford alumna/us who is a health professional.
- Attend programs sponsored by the Health Professions Advising Office. Each year we have discussions with alumnae medical students and physicians, we sponsor information sessions by medical school admissions officers, and we hold workshops about preparing for medical school.
- Join the undergraduate Pre-health Society or other student organizations related to health care. See Appendix B about Student Organizations.
- Volunteer in hospitals or other medical settings as much as you can throughout college.
- Your hometown hospital might have a summer premedical volunteer program. These programs sometimes also provide lectures and shadowing opportunities for participating students.
- Pursue a summer internship in the medical field. Although many summer internships are focused on laboratory research, there are some summer internships sponsored by medical schools that provide exposure to clinical medicine. The Career and Professional Development Office also assists students in finding summer internships. Bryn Mawr offers funding to support unpaid summer internships. These are administered by LILAC. For procedures for preparing proposals and applying for funds visit [https://www.brynmawr.edu/summerfunding/](https://www.brynmawr.edu/summerfunding/)
- Get involved with the outside community; work with underserved populations. When you become a physician, most of your patients will come from diverse backgrounds. A good physician has knowledge, understanding and appreciation of a range of cultures, religions, and socio-economic groups.

**THE MEDICAL SCHOOL APPLICATION TIMETABLE**

The medical school application process is lengthy. You will take the MCAT and submit a web-based centralized application more than a year before you intend to start medical school. Here is a typical application timetable for a student who is planning to apply to medical school that summer.

**Spring Semester**

(18 months before you intend to start medical school)

1. By the end of the spring semester, finish the premedical course requirements required to prepare you for the MCAT
2. Meet with the prehealth advisor before spring break. At this meeting you will discuss your credentials file, where to apply to medical school, and which professors and supervisors you should ask for letters of recommendation.
3. Study for the MCAT.
4. Attend the mandatory “How to Apply to medical school” workshop given by the prehealth advisor.
5. Take the MCAT by the end of the spring/early summer.
6. Start working on the centralized web-based medical school application in May.
7. If you are a senior you should work with the Career and Professional Development Office on searching for jobs. You should also take advantage of the opportunity to work with the health
professions advisor on mock medical school interview (including preparation for the new interview format).

**Summer**
1. Take the MCATs by early to mid-summer if you have not done so.
2. Submit your medical school web-based application as early as possible after June 1. The prehealth advisor is happy to read drafts of medical school application essays.
3. Begin working on and complete secondary applications that are sent to you by individual medical schools.
4. Many medical school admissions officers begin to review completed applications by the end of July, so try to submit all application materials by then, if possible.

**Fall Semester**
(1 year before you intend to start medical school)
1. Practice medical school interviewing techniques, including newer approaches called MMI. The prehealth advisor works with seniors and with alums on these approaches.
2. Interview at medical schools (hopefully).
3. Continue to plan for financing your medical education. You (and your parents) will need to file your income taxes and complete a FAFSA form in January – February.
4. Schools with a rolling admission process start to send out acceptances as early as October.
5. Check in with the prehealth advisor. We want to know what’s happening with you, to learn about your experiences, to encourage you, and to assist you.

**Spring Semester**
(6 months before you intend to start medical school)
1. Schools will continue to announce admissions decisions.
2. Accepted students will receive financial aid information in late spring and will need to work with medical schools and banks on payment plans.
3. By April 30 be holding only one place in one medical school.
4. No matter how things are going, please update the prehealth advisor in January. If you have not been interviewed by January or if you are only on wait lists, meet with the prehealth advisor to strategize about your next steps.

**The summer before you enter medical school**
If you are attending a medical school that has a math requirement, an additional science requirement or a humanities/social science requirement that you did not yet complete, you must take the required course the summer before you enroll.

**FREQUENTLY ASKED QUESTIONS**

*How do I find out about Health Professions events on campus?*

The best way to find out about health-related events is to make sure you subscribe to the Prehealth Listserv and to check your Bryn Mawr email regularly. Any time an event of interest is planned, a notice will be sent out over the listserv to all subscribers. See the first chapter for subscription instructions.

*What is the premedical curriculum at Bryn Mawr?*

There is no formal “premed track” at Bryn Mawr. You are welcome to pursue any academic major of interest while completing the science courses to prepare you for medical school. You may want to pursue the “traditional” premedical requirements, which consist of one year each of biology and physics with labs, and two years of chemistry with labs. Medical schools also require two semesters of English, one of which is fulfilled by the Emily Balch Seminar. In addition, some medical schools have additional requirements in mathematics, and some require or recommend upper-level biology courses such as biochemistry, microbiology or genetics.
In the next few years, there will be changes to the coursework required by some medical schools in response to changes in medical education and the new MCAT. The prehealth advisor will keep you informed as new information becomes available.

**Do I need to major in a science in order to go to medical school?**

No – you can major in any subject and still complete the premedical requirements. Medicine is an interdisciplinary field that requires not only a solid knowledge in the sciences, but also interpersonal communication skills, excellent writing skills and an empathetic attitude toward others. Majors in the social sciences and humanities also provide ways to cultivate skills that would be helpful in medicine.

Yet - if you are interested in biomedical research and possibly pursuing an MD/PhD - keep in mind that those programs are looking for students who have extensive research experience, which is generally best obtained through majoring in the sciences.

**I am not a U.S. citizen or a permanent resident. Will I be able to attend medical school in the United States?**

Unfortunately it is extremely difficult for international applicants who are not citizens or permanent residents of the United States to gain admission to a U.S. medical school. You will face significant challenges in that many medical schools do not consider applications from international students. In addition, you would be responsible for paying for all of the costs of your medical education and as an international student; you would not be eligible for U. S. government educational loans, which is one of the main ways that U. S. citizens pay for their medical education.

The medical schools that consider applications without reference to citizenship will usually require accepted foreign applicants to pay their tuition up front; sometimes as much as four years’ tuition ($150,000 or more) will need to be paid in advance of starting medical school.

In the United States less than 1% of medical school students are international students, which reflect the limited amount of medical schools that accept international students and the limited financial aid resources for them.(See Table 4 at [https://www.aamc.org/data/facts/applicantmatriculant/](https://www.aamc.org/data/facts/applicantmatriculant/))

International students also face similar challenges in gaining admission to and accessing financial resources for other U.S. health professional schools.

**I know that the premedical path is difficult. What can I do to meet the challenges?**

We encourage you to get to know your professors and the prehealth advisor, to seek help with classes when needed, to get involved with activities on campus, and to explore medicine on a regular basis. You should also seek out your dean or faculty advisor for advice and support. Remember that during the first year you will be adjusting to many dimensions of college life, including adapting to new methods of teaching, making new friends and living far from home. In your residential hall get to know your Customs People, Peer Mentors, and Hall Advisors; they are happy to provide a community-based support system and guidance on student life.

**I heard that many Bryn Mawr students wait until after graduation to apply to medical school. Is there any benefit to this? What do the applicants do during the year between college and enrolling in medical school?**

There is more flexibility in the timetable than there was in the past. At Bryn Mawr and at many other colleges a majority of applicants to medical school choose to take time for other experiences after graduation before applying to medical school. Those who plan for a “glide year” and apply after college graduation are at no disadvantage – and in some cases, may be at an advantage. Applying to medical school after graduation means that you will be able to show medical schools a complete picture of your four years at Bryn Mawr including any graduation honors, your senior thesis and other academic
accomplishments, and information about other senior year activities. Medical schools evaluate applications on the strength of the candidates’ accomplishments; not on their age. Those who take some time between college and medical school do not find that they are older than the typical student. In fact, in recent years, the Association of American Medical Colleges reports show the average age of entering medical students has been 24.

You might choose to wait to apply to medical school for a wide range of reasons. You may want to take additional time to complete the coursework necessary to apply to medical school. Or, you may want to pursue exciting post-collegiate opportunities or take time to earn money before beginning medical school.

During the time between graduation and medical school Bryn Mawr alumnæ have been involved in a wide-range of work and service positions. For example they have worked as laboratory or clinical research assistants, or have been involved in service programs (Peace Corps, AmeriCorps, Teach for America, etc.). The Career and Professional Development Office helps seniors and alumnæ to search for employment or to apply to service programs.

I’m really not sure I want to go to medical school. Will medical schools be interested in a person who wasn’t totally committed to medicine in college?

Going to medical school requires a significant commitment of time, money and energy. Many medical students explore other options and test their commitment thoroughly before feeling confident that medicine is the right choice.

If you decide to defer premedical course work until after college, there are a variety of ways that you can complete the courses at a later date. One option is to take the premedical courses through a structured academic program known as a postbaccalaureate premedical program. You can learn more about these programs by reviewing the AAMC's national directory of postbaccalaureate premedical programs at https://apps.aamc.org/postbac/#/index

In fact, Bryn Mawr College has a highly regarded postbaccalaureate premedical program that is designed for students who want to go to medical school and have earned their bachelor’s degree but have not taken the premedical requirements. Our program is for career changers who decided to become physicians late in their college careers or several years after graduation. The postbac students at Bryn Mawr are a wonderful, diverse group of people, many of whom have had some impressive life experiences that led them to their desire to become physicians.

Bryn Mawr undergraduates will have the chance to work closely with postbacs in labs, Health Interest Groups, workshops and programs. Every year the postbac class usually includes a few Bryn Mawr, Haverford or Swarthmore alumnæ/i. For more information on the Bryn Mawr Postbaccalaureate Premedical program go to www.brynmawr.edu/postbac

What if I’m still unsure about whether I want to attend medical school when I graduate? Have I lost my chance to get Bryn Mawr’s help with the application process?

Whenever you are ready to apply to medical school--even if it’s 10 years from now--the Health Professions Advising Office will be happy to advise you through this process.
Chapter 3: Preparing for Dental School

Dentistry includes many exciting professional opportunities - from family practice to specialty fields such as orthodontics and oral and maxillofacial surgery. Some dentists also choose to do research and to teach in dental schools. To learn about dental careers visit [http://www.adea.org/GoDental/Career_Options.aspx](http://www.adea.org/GoDental/Career_Options.aspx)

If you are interested in dentistry, you should join the Dental Health Interest Group, an informal group that meets a few times each semester. They organize meetings and sessions, including workshops with the prehealth advisor about the dental school application process.

Much of the general information about planning for medical school applies to planning for dental school, so please read the chapter about preparing for medical school. The American Dental Education Association site includes a section for students considering dentistry. Visit [http://www.adea.org/GoDental/Future_Dentists.aspx](http://www.adea.org/GoDental/Future_Dentists.aspx) where you’ll find information about career options in dentistry, preparing for and financing dental school, as well as the dental school curriculum.

Some predental students choose to apply to dental school after graduating from college, which enables them to focus on their studies while taking advantage of the many opportunities afforded from a liberal arts college education. Visit the ADEA information about gap years [http://www.adea.org/GoDental/Future_Dentists/Should_I_take_a_gap_year.aspx](http://www.adea.org/GoDental/Future_Dentists/Should_I_take_a_gap_year.aspx) Regardless of when you choose to apply to dental school, the prehealth advisor is always available to assist and support you with the dental school application process.

**Note for international students:** International students should be aware that admission to a U. S. dental school is extremely difficult for students who are not U.S. citizens or permanent residents. International students are encouraged to contact the prehealth advisor to discuss the significant challenges faced by international students seeking admission to U. S. dental schools. Many dental schools do not accept applications from international students. Some dental schools will require international applicants to take the TOFEL exam during the application year even if the international student has a degree from a U. S. college. In addition, dental schools often require accepted international applicants to pay their tuition up front; sometimes as much as four years’ tuition may need to be paid in advance of starting dental school. Because international students are not eligible for U. S. government loans, the “up-front” payment of $150,000 - $250,000 requirement may be very difficult to meet.

**THE CORE PREDENTAL COURSE REQUIREMENTS**

Dental schools require similar preparation in basic sciences as medical schools; some dental schools also have additional course requirements in sciences, math or social sciences. Most dental schools require the following courses:

- **ONE YEAR OF BIOLOGY WITH LAB**
- **ONE YEAR OF GENERAL CHEMISTRY WITH LAB**
- **ONE YEAR OF ORGANIC CHEMISTRY WITH LAB**
- **ONE YEAR OF PHYSICS WITH LAB**
- **ONE YEAR OF ENGLISH** (one semester of the Emily Balch Seminar plus one additional course in the English Department, which can be completed any time prior to graduation)

**NOTES ON PREDENTAL COURSE REQUIREMENTS**

**Science and Math:** The additional courses required by some dental schools often include biochemistry and microbiology. Some dental schools require math, usually one semester of calculus and a few schools also require one semester of psychology. Some schools require anatomy and physiology. Please ask the prehealth advisor for advice if this is required by the schools that interest you. A listing of dental schools that require upper-level science or math courses can be accessed at the Health Professions Advising Office website ([www.brynmawr.edu/healthpro/info/advanced.html](http://www.brynmawr.edu/healthpro/info/advanced.html)). We strongly suggest that non-science major predental students take 1-2 upper-level biology courses in addition to the core predental course requirements, including at least one course in biochemistry.

**AP/IB credits:** Each dental school has its own policy about accepting AP/IB credits. In general, if you have AP/IB credit for an introductory science, the dental schools strongly prefer or require that you
supplement those credits by taking upper-level science courses with labs in the same discipline. It is important to take as many science courses at Bryn Mawr as the total number of required predental courses, i.e. if you place out of an introductory science course you need to take an upper-level course with lab in the same scientific discipline.

The *ADEA Official Guide to Dental Schools*, published annually by the American Dental Education Association (ADEA), [http://www.adea.org/publications/Pages/OfficialGuide.aspx](http://www.adea.org/publications/Pages/OfficialGuide.aspx) provides detailed information about course prerequisites as well as admission criteria for all U. S. and Canadian dental schools. Copies of the Official Guide to Dental Schools are available in the Resources Room of the Health Professions Advising Office.

**THE IMPORTANCE OF STATE RESIDENCY IN THE ADMISSIONS PROCESS**

Your state of residence is an important factor in the dental school admissions process. Many dental state schools reserve the majority of their seats for in-state residents. You should plan your predental course work around the requirements of your state dental school because the cost of that dental school may be more reasonable and your chances of being accepted there are often better than your chances of being accepted to other schools. If you are thinking about dentistry, you should meet with the prehealth advisor early in your college career to review the prerequisites for your state’s dental school.

**SHADOWING DENTISTS AND EXPOSURE TO THE PROFESSION**

An excellent way to gain exposure to the profession is by shadowing a family dentist. In fact, nearly all dental schools require applicants to have 50-130 hours of observation at a dental practice prior to applying to dental school. Contact your family dentist to see if you would be able to spend time shadowing at her/his office during your breaks from college. You should set up a way that the dental office can track your shadowing hours. You may be asked to submit documentation. It is possible to spread out your shadowing hours over the course of your undergraduate career as long as you complete the required number of hours before submitting your dental school application. You can also shadow more than one dentist as long as you meet the shadowing requirements. Many dental schools require a letter from the dentist documenting the total number of shadowing hours as part of the application. Meet with the health professions advisor for information about making the most of shadowing experiences.

**COMMUNITY SERVICE AND VOLUNTEER EXPERIENCES**

Dental schools are looking for applicants who enjoy working with people and have a demonstrated commitment to service. Civic Engagement (CE) is a great place to start your search for volunteer positions. The CE website has sponsors several on- and off-campus service programs, and they can also assist you in finding opportunities on your own. [https://www.brynmawr.edu/lilac/civic-engagement](https://www.brynmawr.edu/lilac/civic-engagement)

**DEMONSTRATING “MANUAL DEXTERITY”**

If you enjoy creative arts and working with your hands, dentistry might be the career for you. Dentists need to have great manual dexterity as well as good “3-D” perception. In fact, the dental school application has questions about hobbies involving manual dexterity. These include activities such as drawing, painting, carving, creating 3-D artwork through jewelry-making, sculpting or ceramics, sewing, needlepoint, or embroidering, crocheting or knitting, or playing musical instruments that require hand-eye coordination. If you do not have artistic hobbies, you may want to join one of the arts clubs on campus as a way to enhance your manual dexterity.

**SUMMER PROGRAMS FOR PREDENTAL STUDENTS**

There are few formal summer programs for predental students. Check the website of your home state’s dental school to see if they sponsor any summer programs.

The Association of American Medical Colleges (AAMC) and the American Dental Education Association (ADEA) sponsor a six-week summer program for first-year student and sophomores who are interested in medicine or dentistry. [http://smdep.org/](http://smdep.org/) Each fall the Health Professions Advising Office holds an
information session about the Summer Medical and Dental Education Program (SMDEP); watch the prehealth listserv for the program announcement.

**DENTAL ADMISSION TEST (DAT)**

All dental school applicants must take the Dental Admission Test (DAT) [http://www.adea.org/GoDental/Application_Prep/The_Admissions_Process/DAT_(Dental_Admission_Test).aspx](http://www.adea.org/GoDental/Application_Prep/The_Admissions_Process/DAT_(Dental_Admission_Test).aspx), which is sponsored by the American Dental Association (ADA). The computed-based test takes close to 5 hours and it consists of four parts: natural sciences (introductory biology, general and organic chemistry); perceptual ability (PAT); reading comprehension; and quantitative reasoning. DAT scores, which ranged from a low of 1 to a high of 30, are reported for each of the aforementioned sections and for two composite scores – the Academic Average and the Total Science score. At the end of the test examinees will receive an unofficial report of their DAT scores. In recent years, the national average DAT score for accepted dental school applicants has been 19-20 for the academic average and PAT sections.

**APPLICATION PROCESS FOR DENTAL SCHOOL**

The application process to dental school generally takes over one year from starting to study for the DATs to matriculation in dental school. In the spring, approximately 18 months before matriculating in dental school, students usually begin to study for the DATs, request letters of recommendation, and meet with the prehealth advisor to develop their dental school application plans.

The timetable for applying to dental school is similar to the medical school application timetable, so you can review the medical application timetable in Chapter 2 for an overview.

Most U. S. dental schools participate in an online centralized application service, AADSAS (Associated American Dental Schools Application Service). [http://www.adea.org/GoDental/The_application_to_dental_school__ADEA_AADSAS.aspx](http://www.adea.org/GoDental/The_application_to_dental_school__ADEA_AADSAS.aspx) Applicants submit the AADSAS application in the mid-summer one year prior to intended matriculation in dental school. After submitting the AADSAS application applicants receive supplemental or secondary applications from individual dental schools.

In late summer, dental school admissions committees start reviewing applications and selecting applicants for interviews. The interview season for dental schools start in early fall and ends by February at most schools. Many dental schools offer admission on a rolling basis with the first offers of admission sent out after December 1 of the academic year prior to the academic year of matriculation.
Chapter 4: Preparing for Veterinary School

Preparation for veterinary school requires studying sciences as well as extensive experience working with a diversity of animal species - large animals, small animals, and wildlife or exotic species. It is exciting to explore the many options available for careers in veterinary medicine. Veterinarians can work many different settings including private practice, zoos, wild life centers, and animal hospitals. Veterinarians may also do basic research, oversee food production and processing facilities, or serve in a governmental agency. For more information visit http://aavmc.org/Students-Applicants-and-Advisors/Careers-in-Veterinary-Medicine.aspx

Typically, a small group of Bryn Mawr students is interested in attending veterinary school. There is an informal student group - the Veterinary Health Interest Group - that usually meets once or twice each semester.

Note for international students: International students should be aware that admission to a U. S. veterinary school is extremely difficult for students who are not U.S. citizens or permanent residents. Many veterinary schools do not accept applications from international students, and international students are not eligible for U. S. government loans, which is the primary form of financial aid for veterinary school. International students are encouraged to contact the prehealth advisor to discuss the significant challenges faced by international students seeking admission to U. S. veterinary schools.

THE "CORE" PREVETERINARY COURSE REQUIREMENTS
Veterinary schools differ in their required courses but most veterinary schools have the following core prerequisite courses as well as additional required science and math courses.

- ONE YEAR OF BIOLOGY WITH LAB
- ONE YEAR OF GENERAL CHEMISTRY WITH LAB
- ONE YEAR OF ORGANIC CHEMISTRY WITH LAB
- ONE YEAR OF PHYSICS WITH LAB
- ONE YEAR OF ENGLISH (one semester of the Emily Balch Seminar plus one additional writing intensive course that can be completed at any time prior to graduation)

Most veterinary schools require additional courses in biology and math; the specific requirements vary from school to school. The additional required science courses often include biochemistry, genetics, and microbiology. Some veterinary schools require courses in animal physiology and animal nutrition. Some of these may be available through summer sessions at another college. Early in your college career, review the veterinary school requirements using the resources below.

NOTES ON PREVETERINARY COURSE REQUIREMENTS
AP/IB credits: Each veterinary school has its own policy about accepting AP/IB credits. In general, if a student has AP/IB credit for introductory science, the veterinary schools strongly prefer or require that the student supplement those credits by taking upper-level science courses in the same discipline with labs.

Each year the Association of American Colleges of Veterinary Medical Colleges (AACVM) compiles several important resources:

- Summary of Course Prerequisites,” a chart listing the prerequisite courses required for each AACVM college. This can be downloaded at http://www.aavmc.org/data/files/vmcas/prereqchart.pdf.

- “College Descriptor Pages” summarizing application information, admission procedures, evaluation criteria, entrance requirements, and additional considerations for each school. http://aavmc.org/College-Specific-Requirements/College-Specific-Requirements_College-Specifications.aspx

- AACVM produces a guide to veterinary medical schools, the Veterinary Medical School Admission Requirements (VMSAR) http://www.aavmc.org/publications/vmsar.aspx.
which provides profiles of all of the veterinary schools, prerequisite course information, and criteria for admission. Copies of the VMSAR are available on the Prehealth Reserve shelf in Collier Library and in the Health Professions Advising Office Resource Room.

THE IMPORTANCE OF STATE RESIDENCY IN THE ADMISSIONS PROCESS
Your state of residence is an extremely important factor in the veterinary school admissions process. Most veterinary schools reserve the majority of their seats for in-state residents. States without a veterinary school usually arrange for schools in other states to accept a certain number of their residents. The Veterinary Medical School Admission Requirements (VMSAR) lists the contract schools for states that have no veterinary school.

You should plan your prevet course work around the requirements of your state’s veterinary school (or your state’s contract schools) because your chances of being accepted there are usually much better than your chances of being accepted anywhere else. If you are thinking about veterinary medicine, you should meet with the prehealth advisor early in your college career to review the veterinary school prerequisites.

GAINING EXPERIENCE IN THE FIELD
All veterinary schools require that applicants have extensive experience working with animals; some schools specify that applicants complete hundreds of hours of primary experience. For example, the University of Pennsylvania School of Veterinary Medicine recommends approximately 500-600 hours and adds, “Experience should be sufficient to convince the admissions committee of motivation, interest, and understanding.” (http://aavmc.org/pennsylvania.aspx) Most successful veterinary applicants will have experience working with several different species including both large and small animals. Veterinary schools prefer applicants who have worked in different settings in order to gain exposure to many of the practice environments of veterinary medicine. While shadowing a veterinarian is an important learning experience, it is essential that applicants gain direct animal handling experience under the supervision of a veterinarian. Also, please note that most veterinary schools require that applicants submit at least one letter of recommendation from a veterinarian who has supervised the applicant’s work with animals.

Bryn Mawr students usually use the summer breaks to gain experience in the veterinary field. For example, students have worked as stable hands at barns and animal caretakers for private practices, and some have found internships at zoos or wildlife centers. Some veterinary school applicants apply after graduating from college, which gives them additional time to gain the required veterinary experience while also taking advantage of the many opportunities afforded from a liberal arts college education. Regardless of when you choose to apply to veterinary school, the prehealth advisor is always available to assist and support you with the veterinary school application process.

There are a few opportunities for you to gain some of this experience during the academic year. The Matthew J. Ryan Veterinary Hospital at the University of Pennsylvania has a formal prevet student volunteer program. Several years ago, a Bryn Mawr student took advantage of the Bryn Mawr Praxis program (https://www.brynmawr.edu/lilac/praxis-courses) to engage in an independent study class with an internship at the Philadelphia Zoo.

APPLICATION PROCESS FOR VETERINARY SCHOOL
Prevet students generally submit their veterinary school applications in mid-July to mid-August, one year prior to intended matriculation in veterinary school. Most U. S. veterinary schools utilize an online centralized application service, VMCAS (Veterinary Medical College Application Service). http://www.aavmc.org/Students-Applicants-and-Advisors/Veterinary-Medical-College-Application-Service.aspx

GRE
Most veterinary schools require applicants to take the GRE (Graduate Record Exam) general test. http://www.ets.org/gre You should plan to take the GRE no later than July one year before you plan to start veterinary school. Taking the test by July gives you enough time to retake the GRE if needed during the application process.
Chapter 5: Preparing for Graduate Studies in Public Health

The mission of public health workers is to promote physical and mental health and to prevent disease, injury and disability among communities and populations. Public health professionals focus on communities rather than individuals. Public health is an interdisciplinary field that emphasizes a proactive, preventative approach to sustaining healthy communities.

Because the field of public health encompasses such a range of services and responsibilities, graduate schools of public health are interested in applicants with a variety of undergraduate majors. Almost any undergraduate course of study will prepare you to enter at least one of the public health specialties. Though not a prerequisite, it is useful to take a course in statistics prior to starting a graduate program in public health because you will be required to take graduate level statistics courses as part of a public health degree program.

*The core areas in public health study are:

- **Behavioral Science/Health Education:** the development of methods, skills and program strategies to help people maintain healthier lifestyles; the design and implementation of programs that affect health.

- **Biostatistics:** the application of statistical procedures, techniques, and methodology to characterize or investigate health problems.

- **Emergency Medical Services:** the administration of emergency response procedures including training, licensing, quality control, access, research, or disaster preparedness.

- **Environmental Health:** the assessment of the impact of environmental factors on community health.

- **Epidemiology:** the systematic study of the distribution and determination of disease or disability in population groups.

- **Health Services Administration/Management:** the application of business, policy, and science to manage resources and the delivery of public health services.

- **International/Global Health:** the effort to improve health standards in developing countries using the skills and techniques of all public health specialties.

- **Maternal and Child Health:** the integration of many fields in public health to focus on the needs of women and children.

- **Nutrition:** the study of the interaction between nutrients, nutrition and health and the application of sound nutritional principles to maintain good health.

- **Public Health Laboratory Practice:** the application of basic science and laboratory research to help with the diagnosis, treatment, and prevention of infectious diseases in communities.

- **Public Health Policy:** the effort to effect legislation about public health issues from local governments to international policy making organizations.

*This is adapted from https://www.apha.org/what-is-public-health
Most often, public health professionals complete a master’s degree, which takes two years of graduate study. The Master of Public Health (MPH) is an interdisciplinary degree that includes courses from health administration, epidemiology, environmental health, and behavioral health. There are also other graduate degrees with a specific focus in individual fields of public health such as Master of Health Services Administration or a Master of Science in Epidemiology. Applicants to graduate programs in public health take the GRE (Graduate Record Exam) and (for most schools) apply through a centralized web-based application service known as SOPHAS. www.sophas.org

MPH programs expect students to have work experience prior to application. Some programs will accept applications from college seniors who have gained significant experience through summer internships whereas other schools firmly require that applicants work after graduating from college before applying. There are many opportunities through Bryn Mawr to gain experience related to public health. Some Bryn Mawr and Haverford courses have an experiential learning component such as a field placement or internship. Many students have been able to draw on Praxis courses as a way to explore issues related to public health. https://www.brynmawr.edu/lilac/praxis-courses Civic Engagement also sponsors service programs, internships, and other opportunities to engage in activity and reflection related to public health.

If you are interested in public health, please consider joining the Public Health Interest Group. There are often postbac premedical students in the focus group who have an MPH or significant work experience in the field of public health. See Appendix B. Student Prehealth Organizations to learn more about Health Interest Groups.

Be sure to attend some of the public health panels and programs that are held on campus every year.
Chapter 6: Exploring Other Health Professions

A number of other health professions are taking a greater role in the delivery of patient care. The Internet is a good starting point for investigating the nature of and educational requirements for entering one of the other health professions. We recommend ExploreHealthCareers.org

http://explorehealthcareers.org/en/home ExploreHealthCareers.org is a free, multi-disciplinary, interactive health careers website that offers a reliable, comprehensive source of accurate, up-to-date information about the health professions. This includes information on and links to health professions training programs and financial aid resources.

The prerequisite courses for acceptance into a graduate level program vary significantly from profession to profession and school to school. If you are interested in other health professions you should explore the prerequisites for graduate study early in your college career. The Health Professions Advising Office website has links to a wide range of professional organizations for other health professions. We encourage you to meet with the health professions advisor to discuss your interests.

Below are some websites to other health professions that Bryn Mawr students have pursued in recent years.

Nursing: American Association of Colleges of Nursing  
http://www.aacn.nche.edu/

Note that some Bryn Mawr alumnae have pursued accelerated second bachelor’s degree nursing programs. Many of these accelerated programs enable their students to earn a Bachelor of Science in Nursing in 1½ to 2 years. Be aware that the prerequisite course requirements vary between programs and that some prerequisite courses, such as human anatomy and physiology are not offered in the Tri-College curricula. Your health professions advisor can help you as you plan to take these courses. For lists of accelerated programs visit http://www.aacn.nche.edu/education-resources/nursing-education-programs

Nurse Practitioner: American Association of Colleges of Nursing  
http://www.aacn.nche.edu

Occupational Therapy: American Occupational Therapy Association  
http://www.aota.org

Optometry: American Optometric Association (AOA)  
http://www.aoa.org  
Association of Schools and Colleges of Optometry (ASCO)  
http://www.opted.org

Pharmacy: American Association of Colleges of Pharmacy  
http://www.aacp.org

Physical Therapist: American Physical Therapy Association  
http://www.apta.org

Physician Assistant: Association of Physician Assistant Programs  
http://www.aapa.org

Speech Therapy: American Speech-Language Hearing Association  
http://www.asha.org
Chapter 7: Health Studies Minor

In the spring of 2014 Bryn Mawr and Haverford Colleges launched an exciting new minor in Health Studies. This multidisciplinary program brings together faculty and students from a wide range of academic fields to explore biomedical, cultural, ethical, and political questions related to health issues on local, regional, and global scales.

There are three core tracks to the Health Studies Minor:

- **M Track** – Mechanisms of disease and the maintenance of the healthy body
- **R Track** – Cultural, literary, and visual Representation of health and illness
- **S Track** – Familial, social, civic, and governmental Structures that respond to issues of health and disease.

For more information, visit the Health Studies website [https://www.brynmawr.edu/healthstudies](https://www.brynmawr.edu/healthstudies)
Appendix A: Programs to Increase Diversity in the Health Professions

In an ideal world the demographics of the health care work force would mirror the demographics of the country as a whole. Professional societies, educational institutions, and the U. S. government recognize that the health professions and the provision of health care would improve with a more diverse health care work force.

There are a number of racial and ethnic populations that are underrepresented in the health professions relative to their numbers in the general population. Historically the term “underrepresented” referred to four historically underrepresented groups - Blacks, Mexican-Americans, Native Americans and mainland Puerto Ricans. The term “underrepresented” has been expanded to include a broader range of ethnicities and consideration of socioeconomic disadvantage. In addition, there is a greater focus on regional and local demographics so as to improve the cultural competencies of graduating physicians and improve access to care for underserved populations. Schools of dentistry and veterinary medicine have also responded to the need to increase diversity within their professions. Below you will find information and links to programs to recruit and support students from underrepresented groups and financially disadvantaged backgrounds.

MEDICINE

The American Association of Medical Colleges’ (AAMC) definition of underrepresented in medicine is: "Underrepresented in medicine means those racial and ethnic populations that are underrepresented in the medical profession relative to their numbers in the general population." For more information, visit the AAMC website https://www.aamc.org/initiatives/urm

If you are from a group that is underrepresented in medicine as defined by the AAMC or from a financially disadvantaged background, please be aware that there are opportunities that may be available to you, including:

- Summer academic programs
- Summer research programs
- Postbaccalaureate programs designed to help students prepare for the MCAT and to provide opportunities to further demonstrate ability in the sciences

AspiringDocs.Org is an initiative by the AAMC to increase diversity in the medical profession. Their website provides comprehensive information and advice for students from the high school level to medical school. http://www.aspiringdocs.org/

The AAMC website Minorities in Medicine has information related to medical student preparation, the medical education pipeline, and financial aid opportunities. https://www.aamc.org/students/minorities/

SUMMER MEDICAL AND DENTAL EDUCATION PROGRAM (SMDEP)

SMDEP is a free six-week summer medical and dental school preparatory program for first and second year college students. Originally developed for students from historically underrepresented minority groups or from economically or educationally disadvantaged backgrounds, the program includes students from a wide variety of backgrounds who demonstrate commitment to service, issues affecting underserved populations, and careers in health care. Over the years many Bryn Mawr students have participated in the SMDEP at sites throughout the country. Each fall we hold an SMDEP information session at which Bryn Mawr students discuss their SMDEP experiences. http://smdep.org/.
DENTISTRY

According to information from the American Dental Association (ADA), there is critical need to increase the representation of minority dentists.


“There is a critical need in many underserved communities where minority and disadvantaged people are not getting the care they need. Only 12 percent of students entering dental school are minorities, while minorities make up 25 percent of the general population. Recent data shows that minority dentists treat a very high number of minority patients.”

http://www.adea.org/GoDental/Dentistry_101/Need_for_diversity.aspx

VETERINARY MEDICINE

The Association of American Veterinary Medical Colleges’ Diversity Matters initiative sponsors the AAVMC’s programs to foster diversity within the veterinary professions. See http://www.aavmc.org/Programs-and-Initiatives/Diversity.aspx
Appendix B: Prehealth Student Organizations

Bryn Mawr’s tradition of self-governance promotes students as leaders for extracurricular activities and organizations, and this is evident in the prehealth community. Undergraduates direct several organizations related to the health professions.

PRE-HEALTH SOCIETY

The Pre-health Society organizes activities for all students interested in careers in the health professions. In recent years, events include student panels to discuss summer internships, fundraisers for the American Cancer Society and the Red Cross, and talks by outside speakers who work in health care. The Pre-health Society will have a table at Fall Frolic, and you can sign up for their listserv at that time.

HEALTH INTEREST GROUPS

Health Interest Groups are informal student groups that meet during the academic year to explore a specific area of medicine or health care that is of interest to its members. Bryn Mawr undergraduates and postbaccalaureate premedical students participate in Health Interest Groups and run them together. Health Interest Groups are a great opportunity for the prehealth students on campus to get together and share their perspectives and expertise.

Each focus group organizes its own activities; some activities are just for group members whereas others will be open to the entire college community. The focus group leader training session provides leaders with access to resources and information to help them have a successful year.

All Bryn Mawr undergraduates and postbac students are welcome to be members of any of the Health Interest Groups, and students can also be members of more than one group. The focus group kickoff takes place within the first two weeks of classes. You can also join a focus group by emailing one of its co-leaders.

From year to year the focus group topics vary depending on the interests of the students involved. The list of 2016-2017 Health Interest Groups and the contact information for the student leaders will be posted on the of Health Professions Advising Office website during the first week of classes.

Examples of past focus group activities:
• Hosting speakers on campus
• Arranging panel discussions on topics of interest
• Finding and discussing pertinent journal articles
• Hosting brown bag lunches with faculty members whose research is relevant to the focus group’s topic
• Viewing movies or documentaries about specific topics in medicine

Examples of previous Health Interest Groups:
• Dentistry
• Emergency and wilderness medicine
• Ethics
• Infectious diseases
• Integrated/alternative medicine
• Neurology/psychiatry
• Nutritional health
• Pediatrics
• Public health & international medicine
• Veterinary medicine
• Women’s health
Appendix C: Professionalism

Serving others through a career in the health professions requires responsibility, sensitivity, maturity, solid judgment, leadership and good interpersonal skills. Your interactions with faculty and your participation in internships and service in the community help you to develop those qualities, which are dimensions of professionalism.

Whether you are applying for internships, working on a project with peers, faculty or staff, or volunteering in the community, you should be courteous and professional in all of your interactions. Here are some general pointers to consider as you move prepare for a career.

Communication issues
1. When choosing user names for email accounts, online web applications, and other online forms, always choose a professional sounding username. The user name often appears first on electronic forms, so you would not want a provocative name to create a negative first impression with the reader. Sometimes it is not possible to change the user name in an application or with a web service.
2. You should set up a separate email account that you will only use for your professional activities such as correspondence about internships, applications, etc. Create a basic signature file containing your name and contact information.
3. Do not write any email messages as if you were text-messaging or e-chatting with a friend. It is easy to do this, so carefully read over your emails before you send them.
4. If you provide your cell phone number on a resume or to prospective supervisors, make sure that you have an appropriate voicemail greeting.
5. When asking for letters of recommendation remember that the recommenders, especially professors, often have many other letters of recommendation letters to write as well as other work. Ask with plenty of advance notice, and provide specific information about where and how the letter of recommendation is to be sent and what the deadlines are. It helps to give them a copy of your resume, as well.

Online Persona
It is likely that there is a significant amount of information about you on the Internet. Keep this in mind and recognize that employers and admissions committees often check online to find out additional information about applicants.

When online, consider these issues:
- Facebook, Instagram, Tumblr, etc. accounts are not always as secure as they purport to be.
- Make sure you present the portrait that you want people to see; many employers or admissions officers will look up applicants before making an offer.
- Check your privacy settings often.
- What you post on blogs and websites can be archived; like email, nothing is ever truly deleted. If you are posting sensitive information, make sure it is in an absolutely inaccessible area.
- It would be a good idea to use Google and other search engines to learn what is posted about you. You don’t want to be caught off-guard and discover that there is information that might portray you in an unflattering way.
- Even sites like Twitter, where content changes rapidly, can provide a way for others to form an opinion about you. It is a good idea to exercise discretion with online posts of any kind.

The Association of American Medical Colleges (AAMC) has an interesting article “How Social Media Can Affect Your Application,” which offers perspectives from medical school admissions officers on the effects of social media on the medical school application process. [https://students-residents.aamc.org/applying-medical-school/article/how-social-media-can-affect-your-application/](https://students-residents.aamc.org/applying-medical-school/article/how-social-media-can-affect-your-application/)