

EMU Pre-Professional Health Sciences handbook

Introduction

Through the years, EMU has had a strong emphasis in preparing students for health careers in medicine, nursing, medical technology, dentistry, veterinary medicine, physical therapy and other health science areas. For many students, choosing a health career reflects their service motivation who see their career as an opportunity to carry out the teaching and example of Christ to be caring and compassionate persons – interested not only in the spiritual welfare of people, but also in their physical and emotional well being.

The general education program at EMU (the global village curriculum) provides a strong preparation for the future health care provider. Academic courses in Biblical studies, social sciences as well as the sciences, humanities, and cross-cultural experiences produce a matrix of understanding that leads to the formation of an intellect which is both emphatic and aware of global needs and issues.

The rigorous natural science curriculum provides the basic content of material that will enhance future graduate studies in health science. Thus the student is prepared for both the professional health science school as well as the profession. Learn more about the Global Village Curriculum here: **emu.edu/academics**.

The links on these pages will inform the interested prospective and as well as current student regarding the varied programs at EMU that prepare students for a future career in one of the health professions. Most of this information is targeted for premedical students, however much of it is applicable to students in other PPHS programs.

If you are planning to enroll in one of our PPHS programs, complete the PPHS enrollment form: **emu.edu/pphs/enrollment**.

Getting Started Right

As you begin your first semester of school at EMU, you must do so in earnest, cultivating a determination to do your best from the very start. Develop good study habits. If you need help in this contact the Learning Center whose services are available for all students. Budget your time wisely. Extracurricular activities are fun and essential, but use discretion in choosing how much time to devote to

them. Weekends are valuable time for study, working on term papers and special science projects, and preparing for exams. Too many trips home can adversely affect both your grades as well as your pocketbook!

Four extremely important science courses at EMU are in the first year – General Chemistry I & II, Concepts in Biology, and Molecules to Cells. Good grades (A's or B+'s) in these courses will give you a basic foundation and a sense of confidence that will be valuable in the subsequent years when you enroll in courses that are far more difficult. Although you can not prove this by calculus, it is harder to raise a low GPA than to lower a high GPA.

As you begin and progress through your premedical education, keep in mind that you are really preparing for a life profession – to help people with their physical, emotional, spiritual, and other problems – not just to get admitted to medical school. This goal should guide you in choosing a major and a minor and should motivate you to make wise decisions in selecting extracurricular activities, developing good study habits, critical thinking, effective reading and interpersonal skills.

Choosing a Major, Minor, and Selected Courses

One of your first decisions in college will be the choice of a major. Do you have to be a science major to get into medical school? Definitely not. However, most successful applicants do major in one of the sciences – most commonly biology or biochemistry. But you may choose any major that you think you will enjoy, as long as you take all the courses required for admission to the medical schools to which you wish to apply.

These course are usually general chemistry, organic chemistry, general physical, at least a year of biology, mathematics (including calculus) and English courses. Some schools require additional courses; others do not specify them.

Most premedical students at EMU major in one of the sciences since completing the requirements for a science major typically also includes most, if not all, of the suggested course requirements for medical school admission.

While this approach has many advantages, medical schools are most concerned about the quality and scope of the undergraduate academic experience. Medical schools value a broad education. During the premedical years as an undergraduate student, it is usually the individual's last opportunity to pursue some non-science courses of interest in depth.

The premedical student is encouraged to select elective courses from the humanities and behavioral sciences. The practice of medicine is more than a science – it involves the ability to understand and relate to persons and their families, to be able to identify emotional, social and spiritual problems which are frequently related to physical illness. Furthermore, students who take more courses in the humanities, or perhaps minor in a humanities area, tend to score higher on the reading comprehension portion of the MCAT. The ability to speak, write, and communicate clearly and expressively in English is a strong prerequisite for success in medicine. Effective communication is the foundation of a doctor's relationship with patients and with others in the profession.

Cross-cultural experiences and learning the basics of a foreign language enhance one's preparation for medicine. Increased awareness of global issues and enhanced sensitivity to peoples of a different culture are character traits that contribute to a quality physician.

Students need to carefully plan their academic course program with an advisor. Such a program needs to include a healthy mix of upper level science courses with the lower level ones that are minimal requirements for medical school.

Can you get into medical school by enrolling in the Pre-med track?

The immediate answer is "yes". However there are some conditions to that positive response. You can gain entrance into medical school if....

- you know what you are doing and are really committed to the rigors of medical education and practice. Medical education is not for the half-hearted or lazy, but requires firmness of purpose and a strong commitment.
- you have a deep sense of personal responsibility, integrity, compassion, tolerance, sensitivity and emotional stability. These qualities constitute the type of maturity sought for by medical schools in their applicants.
- you enjoy science and make good grades in science courses. Premedical science courses form the bases for future medical school courses such as physiology, biochemistry, pharmacology, etc. If you have to spend all of your time studying undergraduate courses in these areas in order to earn a grade of "B", you should consider a career other than medicine.
- you are efficient, neat, and able to make quick decisions. The latter quality is essential for doing well on the MCAT and medical school exams as well as for making quick decisions in medical practice. Patient emergencies rarely give the attending physician a lot of time or a second chance.
- you are healthy, have good physical stamina, and are stable under stress.

- you have an understanding about the requirements for specific medical schools and apply in a timely fashion to the ones that appropriately fit your qualifications and interest.
- you have a strong sense of God's leading in your career choice. Don't mistake personal desires or whims for Divine guidance.

General Information for Undergraduate PPHS Students

Student Experiences

Experiences that are important during your preparation as an undergraduate student are of two types: volunteer and clinical. The volunteer experiences should be numerous and extensive. You should be able to document over 100 hours of volunteer experiences in at least two settings. Examples of volunteer experiences may include Big Brothers/Sisters or Saturday Adoption, etc. When you complete any experience involving more than 50 contract hours, you should ask the supervisor to send a reference letter to EMU (in care of the Chair of the PPHS Advisory Committee). This letter should include a brief description of what you did, an approximation of time involved, and a brief assessment of your personal qualities and attributes. Similarly the clinical experiences will typically involve observation and shadowing. Again you should be able to verify at least 100 hours of clinical experiences in at least two settings. A reference letter should be requested from the supervisor.

Student Research

Science is an important component of medical education. Demonstration of science aptitude includes grades in science courses and experience in science research. The applicant who participates in an independent research project in science, either with a faculty person on-campus, or via some program off campus will be enhanced. Strongly consider incorporating a research experience during your sophomore or junior years.

Preprofessional Health Science (PPHS) Society

The PPHS Society is a student group who are interested in serving in the health professions (other than nursing – nurses have their own club). The PPHS Society meets about monthly and features speakers such as doctors, dentists, veterinarians, medical school personnel, medical technologists, and other health care professionals as well as videos, student produced programs, and volunteer activities. The purpose of the society is to help clarify career goals, give insights into various health professions, and provide an opportunity for fellowship and fun.

The society also plans trips to medical schools and clinics for members. The officers, who are student elected, minimally consist of a President (typically a senior student), a Vice-President (typically not a senior), and a Secretary/Treasurer. Some years the officer responsibilities are expanded with additional roles.

Preprofessional Health Science (PPHS) Advisory Committee

This committee is composed of several faculty persons whose functions are:

- To advise in matters of curriculum construction for premedical and other preprofessional schools.
- To evaluate student records and furnish recommendations to professional schools.
- To be available to students for counsel.

During the spring semester of each year this committee formally interviews student applicants in order to help them prepare for the application procedure.

The committee members for the 2007-2008 academic year are:

- Roman J. Miller, Chair, Professor of Biology
- Greta Ann Herin, Assistant Professor of Biology
- Leah Boyer, Assistant Professor of Physics
- Tara Kishbaugh, Associate Professor of Chemistry
- A Psychology Faculty person
- Cheryl Doss, secretary/staff

All of these persons are ready to help you with questions about your courses and major choices, career goals, preparation for the professional school admissions tests, application to graduate schools, etc.

Allopathic versus Osteopathic Medical Schools

In the U.S. two types of medical school are options for many students. The traditional medical school is called an allopathic medical school. Accredited allopathic medical schools are part of the American Association of Medical Colleges (AAMC). An alphabetic listing ordered by states and providences of these American and Canadian schools can be found on the following website:

<http://www.aamc.org/students/applying/admissions.htm>

The AMCAS, American Medical College Application Service, is the main application gate-way for these schools.

Osteopathic medical schools have a different philosophy and approach to medicine. Although they cover the same curricula that allopathic medical schools do, they have additional curricula that support some of their unique understandings of medicine and health. Accredited osteopathic medical schools are members of the AACOM, American Association of College of Osteopathic

Medicine. For information regarding osteopathic medicine visit the following website <http://www.aacom.org/index.html> which provides information about the philosophy of osteopathic medicine, a listing of accredited osteopathic medical schools, and information about the application process.

As an informed premedical student, you should spend some time evaluating these two philosophies of medical practice and health. Somewhere prior to the time that you plan to apply to medical school you should have a clear understanding which philosophy best applies to you. In preparation for your application process, you should select a minimum of three medical schools that match your interest and credentials.

MCAT

In preparation for medical school, the single most important test that you will take is the Medical College Admissions Test or MCAT. Following is a website that features on-line instruction, practice tests, etc. in preparation for taking the MCAT. This may be a viable option for some of you. It is considerably less expensive than the Kaplan alternative and gives more structure than an individualized approach. Check out the website at: <http://www.learningaccord.com/mcatexams.htm>

Currently the MCAT is offered on various dates and is taken on-line via a computer under controlled conditions. Optimally, you should plan to take the MCAT in late spring after you have completed the essential courses which serve as pre-requisites. It is also important to study and prepare to take this test. If you have made a mixture of A's and B's in your required science courses at EMU, with additional review and study you should be able to make a good score on the MCAT. Prior to attempting the MCAT make certain that you have completed the course sequences for General Chemistry, Organic Chemistry, General Physics and at least two courses in upper level Biology or Biochemistry. If you plan to study on your own in preparation for the test, I suggest that you buy a good MCAT review manual and at least one sample copy of the MCAT. If you begin your preparation on January 1, you should average an hour a day of review and study until about mid April. An optimal time to take this test is immediately after the semester ends at EMU.

You will need to register ahead of time to take this test and select both the location and the date you wish to take the test. The official website for the MCAT is <http://www.aamc.org/students/mcat/start.htm> which is sponsored by the American Association of Medical Colleges (AAMC). On that website you will find additional information about preparation and taking this test.

This timed test is about five hours long and is given at an approved testing center. The time is divided into four main subsections divided by 10 minute

breaks: (1) Physical Sciences, 52 minutes (covers General Chemistry and Physics); (2) Verbal Reasoning, 40 minutes (covers reading comprehensive, analysis, etc) (3) Writing Sample, 60 minutes (typically answer two questions) (4) Biological Sciences 70 minutes (covers Biology and Organic Chemistry).

How well do you need to do?

Generally, you need to have a composite score of at least 30 in the Physical Sciences, Biological Sciences and Verbal Reasoning sections to have a competitive score for a mid-range allopathic medical school, e.g. Virginia Commonwealth University or Temple University. If your score is higher, e.g. 35, you may be competitive for the University of Virginia or University of Pittsburgh. (Your state of residency is an extremely important factor in gaining admission to many medical schools.) Alternatively, if your MCAT score ranges from 22-28, you should probably not consider applying to an allopathic medical school, but you may be competitive for an osteopathic medical school. Your PPHS advisor can help you decide what schools are a good match for you.

Internet Sites with Insight

Aaron Trimble a recent graduate of EMU who was successful in gaining entrance into his medical school of choice, University of Virginia, has researched and described several websites of interest for the premedical student.

--> <http://www.studentdoctor.net/>

The Student-Doctor Network (SDN) is far and away the largest network of health profession students on the internet. There are forums for Pre-professional health (Pre-med, pre- vet, pre-dental, etc.) as well as students in professional schools, including excellent resources for osteopathic medicine. Although SDN attracts students of all types and academic backgrounds, the students who post most frequently are extremely competitive students, so do not be intimidated by 40+ MCAT scores, published research experiences, etc. There is a wealth of useful information here.

Of particular interest on SDN:

--> <http://www.studentdoctor.net/interview/index.asp>

This is an archive of student's experiences interviewing at various medical schools. Includes what questions were asked, what sort of travel or hosting experiences the school offered, and general overall impression. This is an invaluable tool for the interview season.

--> <http://forums.studentdoctor.net/forumdisplay.php?f=31>

This is a forum dedicated to the MCAT, including what and how to study, people's experiences, and general useful information. There is probably not a whole lot here that couldn't be found elsewhere, but it can help relieve anxiety to frequent the MCAT countdown thread if you're waiting for your scores.

--><http://mdpotential.com/>

After you know your MCAT score and official GPA, this site can help determine how likely you are to get in to a particular school given your GPA and your MCAT score. Just remember, there's more to this than just the numbers!

Other Health Careers

Much of this information is directed toward students who are preparing to enter professional schools including allopathic, osteopathic, dental, and veterinary medical school programs. However, students should consider other alternatives as well. You may discover as you go through college that you do not have the academic ability to enter a rigorous medical school program. You may find out that another profession appeals to you more or you may become “disillusioned” with medicine. Finally, there is a possibility that you may not receive an acceptance the medical schools to which you apply.

Other graduate health professional programs may be more appealing to you. Most of these are available on the doctoral level; some on the master's level. These include optometry, physical therapy, occupational therapy, pharmacy, podiatry, public health, clinical laboratory sciences, physician assistant, chiropractic medicine, and basic science biomedical programs. All of these provide an opportunity to establish personal relationships with patients or clients which can be satisfying and stimulating.

While these professions do not have the glamour and high visibility that the medical profession has, partly because of over-rated TV programs, they can be just as self-fulfilling and service-oriented. Generally they are not as demanding academically, physically, and emotional as allopathic medicine tends to be.

The Medical School Application

Overview

Most allopathic accredited medical schools in the U.S. (124 of them) use the American Medical College Application Service (AMCAS) as the method to receive student applicants. Individual medical schools have residential Admission committees consisting of admissions staff, faculty, and sometimes student members who review and process submitted application materials from the AMCAS. Typically the admissions office staff does an initial screening of all applicant materials and forwards those who meet the basic criteria established by the admissions committee. The admission committee will evaluate student files and then invite selected applicants to come for interviews. Ultimately this

committee makes the decision regarding which applicants will receive invitations for matriculation.

The annual deadline for a medical school to receive AMCAS applications vary, but range from mid-October to mid-December. The deadline for the secondary applications also varies from school to school, but typically coincides with the overall deadline date.

Interviews for invited candidates typically begin in the fall months and continue as late as early spring. Typically by the end of March, medical schools will accept the number of applicants that equal the size of their projected entering class. Since some of these applicants will have received multiple acceptances, and therefore, must reject some acceptances, most medical schools will issue additional acceptances to individuals who may be on their “waiting lists.”

Applicants, who complete their AMCAS materials early, typically by early July, have an advantage in being considered early on by medical schools. Typically early acceptances are easier to obtain than late acceptances. Persons who wait to apply until near the deadline, put themselves into a disadvantaged position which frequently results in failing to gain entrance into medical school.

The AMCAS application is made on-line (www.aamc.org/amcas). The website explains in detail the steps in completing an application as well as provides a timeline and other materials that will assist applicants in preparing their application.

Applicants must request an official transcript from each college or university that they have attend since high school. These transcripts must be sent directly to AMCAS by the school’s registrar. Applicants can use the AMCAS “transcript request form” to facilitate the completion of this requirement. Since college transcripts must be verified by AMCAS (a process that takes some time), it is important that transcripts be sent early in the application process to AMCAS, or as soon as possible after May 1.

AMCAS provides an on-line monitoring form by which applicants can check the progress of their application through the AMCAS system. It is the responsibility of the applicant to check for and notify AMCAS if errors occur or if information is missing.

Some Reminders

- Neatness, completeness, and accuracy are imperative! An application without grammatical errors will not necessarily get you admitted to a medical school but a careless one certainly insures your rejection.
- Copy and keep in your files everything that you submit to AMCAS and or to the medical schools. This includes parts of the on-line application as well as emails that you may have sent or received. If something should

get lost in the mail (it happens!) you can forward another copy without delay. Some admissions offices notify their applicants when their folders are complete; others do not. If for some reason you suspect that something that you sent or asked to have sent has not been received, call or email the appropriate admissions office (contact information is in the MSAR).

- Be accurate, especially in computing grade averages for AMCAS, and do it according to their directions. If there is the slightest error, or discrepancy between your computation and your transcript, your application may be delayed which will cost you valuable time.
- The essay is your opportunity, prior to the interview, to tell the admissions committee about yourself. Here is a chance to tell why you wish to take up a career in medicine, what you have been doing the past few years that demonstrate not only that you are academically qualified to study medicine, but also that you have compassion and empathy for the unfortunate, and commitment required for the profession. Be specific in your statements about your calling and your activities. Avoid cliché's – nearly all applicants say they “like science and are interested in people”. If you have certain qualities or characteristics (empathy, honesty, industry, stick-to-itiveness, curiosity, etc.) that you feel would make you a good doctor, illustrate them by things you have done. Be honest. Rewrite your essay a couple times to insure good grammatical construction; follow instructions carefully. Don't be modest, but don't be gushy or hypocritical or pretentious. Don't try to be funny. Just inform the admissions committee clearly and concisely about your pertinent accomplishments and thoughts. They want to know what you think about yourself.

How Many and Where?

The average EMU applicant sends applications to six to seven schools. The nation wide average is about ten. It is a mistake to apply to fewer than four schools. If you are uncertain which schools may fit you the best, have a school selection conversation with your premedical advisor. Since the three Virginia allopathic schools know EMU, its graduates, and PPHS advisory committee, it is wise to apply to at least to two of them if you are a Virginia resident; if you are not a resident of Virginia you should primarily apply to schools in your home state and maybe one Virginia school.

What about the Early Decision Program (EDP)?

Under this plan the applicant files an application (indicates this in the AMCAS form) to only one school (usually prior to August 1) and is guaranteed prompt notification (usually on or before October 1) of either acceptance or rejection by that school. The decision to apply through EDP should be made carefully after consultation with your premedical advisor.

EDP applicants agree

- Not to apply through EDP if they have already submitted an initial application to the M.D. program at a U.S. allopathic medical school for the current entering class.
- To apply to only one AMCAS medical school through the EDP.
- Not to submit additional AMCAS applications until they have received notification of non-acceptance through the EDP, or they have been formally released from the EDP commitment, or the October 1 EDP notification deadline has passed.
- To attend the school if offered an EDP acceptance.

Not all medical schools have an EDP program. For example in Virginia the University of Virginia does not have an EDP program, but Virginia Commonwealth University and Eastern Virginia Medical School do have EDP programs.

The major disadvantages are that if you are not accepted early you must scramble to file other applications which will make them a bit late for optimal consideration and you cannot change your mind about which school to attend if you are accepted via EDP. On the other hand, it is a great satisfaction to receive early notification of acceptance and it saves a lot of time and money since you apply to only one school.

The Evaluation & Recommendation Process

Eastern Mennonite University has a Preprofessional Health Sciences Advisory Committee (PPHS-AC) which has the responsibility of overseeing the curriculum, student advising, and providing official evaluation letters for application to professional schools. The committee sends to each of the student's science professors (and usually several others) an evaluation form to be completed at the end of each course. This evaluation form is made part of the student's file. Other materials added to the file are a transcript of record, MCAT scores, letters of reference certifying volunteer and health related experiences, and a questionnaire ("goldenrod form") completed by the applicant.

Prior to requesting letters of reference the student contacts the chair of the PPHS-AC to schedule an interview. These interview sessions are typically held in late spring – April or early May. Alternatively, late August or early September is another time that interviews can be scheduled. The interviewee is responsible to provide one copy of the following five items to the chair of the PPHS-AC at the time of scheduling an interview:

-  A one-two page professional type resume

- A copy of the current transcript of completed courses through the prior semester
- A copy of a completed “Preprofessional Health Sciences Questionnaire. [Hyperlink to Word Document]
- A description of at least three medical schools (allopathic or osteopathic) for which you may be a competitive applicant and a rationale why you are matched for these schools.
- A written essay (200-300 words) describing why you want to go to medical school.

This interview provides valuable information for the committee members who write letters of reference for the applicant. Also this is an excellent learning experience for the applicant who will later face interviews by admissions committee members at medical schools.

The materials in the file and information from the interview are used by the committee to write the letter of recommendation which is sent to various schools upon the request of the student applicant. Usually the member of the committee who knows the student applicant the best will write the first draft of the letter; it is then edited and/or approved by two other members of the committee. Typically a committee letter contains the signatures of three faculty persons. This letter is accompanied by a summary of the individual course evaluation forms.

The Medical School Interview

After your file at the medical school is complete — AMCAS materials with transcripts, supplemental application form, and letters of reference — and the medical school admissions committee reviews your records and believes that you are qualified for admission to their medical school, you will be invited to come to the medical school for an interview. Not all interviewed applicants are accepted (only about 25%), but if you get invited for an interview you are getting closer to your goal.

Medical School admissions committees use one of two types of interview processes: (1) open-file interview where the interviewer has access to and has read the applicants file; or (2) closed-file interview where the interviewer knows nothing about the applicant except his/her name. In many situations two interviewers are used (at two different settings) for each applicant. Typically one interviewer is a faculty member and the other interviewer is a medical student.

The interview is extremely important, since no matter how qualified you may be, a poor interview experience will result in a “regret” letter. The interview allows the admissions committee to learn something about you which are not in your

file. It enables them to see how you function under pressure. It also gives you the opportunity to explain any weak areas in your application as well as to learn more about the medical school from faculty and students.

Interviewers are typically looking for several things from their applicants. These include motivation, the ability to demonstrate logical thinking, reflections on involvement in extracurricular activities including volunteer and clinical experiences, evidences of maturity and leadership abilities, breadth of education including the liberal arts, people skills such as compassion, sensitivity, and open-mindedness, communication skills, and a realistic assessment of the applicant's personal goals.

In preparing for an interview, the applicant should visit the school's website and become acquainted with the uniqueness of the specific school. Prepare a thoughtful question or two that reflects your interest and insights into the specific medical school. Since interview conversations frequently involve current medical topics, read the newspaper, news periodicals (especially the science sections), and watch science news related television programs to be aware of the contemporary medical issues of the day. Finally, it is helpful to reflect on your personal qualities – strengths and weakness. Write down the specific motivations that moved you into medicine.

Consider how your experiences in college (curricular and extra-curricular) have shaped and strengthened your interest in medicine. Be prepared to discuss potential problems in your background that the interviewer may raise, such as the low grade you received in Organic Chemistry II or the inconsistencies in your academic program, etc. Two things are important--acknowledge your weaknesses but also describe what you have learned from those experiences that has made you stronger and more suited for medicine.

Come to the interview professionally attired (a standard business suit for both men and women is most appropriate); be prompt for all appointments. Demonstrate sincerity, interest, and be relaxed!

Record in a journal your impressions and descriptions of your experiences following each interview. Attempt to evaluate the points and places where you were effective and other times when you were less than adequate. Self-reflection will aid you in subsequent interview occasions.

The Last Steps

Your goal is to receive an acceptance letter from at least one of the schools to which you applied. If you have faithfully followed the advice of your PPHS advisors, you should be successful and receive that prized letter. When you do,

please inform your PPHS advisors about the good news! We care and wish to rejoice with you. You may wish to participate in an old EMU tradition in which the applicant, who is successful for the first time in gaining an acceptance letter, celebrates the event by gifting his PPHS advisors with a small healthy treat!

When you receive the first acceptance letter, you should respond in a few days and accept that offer. Typically the medical school will require a monetary deposit to confirm your intentions. With multiple applications, you may receive multiple acceptance letters. In that event you must make a decision in which medical you ultimately wish to matriculate.

You may initially accept more than one offer, however after you make a final decision, you should write letters declining the other offers you have accepted. This final decision should be made no later than May 15. If before May 15, you send letters of refusal back to the school you initially accepted, the medical school will typically refund your deposit. If you wait until after May 15, you will lose your deposit.

If you are on a waiting list, it may be that you will receive an acceptance letter after May 15, since some other applicants who are holding multiple acceptances typically decline some of their acceptances. However, being on a waiting list most frequently does not result in a late acceptance. The waiting lists are typically very long.

If June 1 has passed and you have not received any acceptance letters, you should speak with your PPHS advisor for counsel regarding the next step. It may be that the reason for the non-acceptance is clear to you; if so, work at “fixing the problem” and try to reapply another time. If you do not understand why you were not accepted, it may be appropriate to write a letter to the admission deans of the schools to which you applied and inquire what you could do to strengthen your application in a subsequent application cycle.