

The logo features the letters 'UNM' in a large, light gray, sans-serif font in the background. Overlaid on this is the text 'PRE-MED' in a bold, dark red, sans-serif font. Below 'PRE-MED' is the text 'SCIENCES PROGRAM' in a smaller, black, sans-serif font, with wide letter spacing.

PRE-MED
SCIENCES PROGRAM

Application Guide to Medical School

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Application Guide to Medical School

Introduction

This document was composed by an alumnus of the University of Montana who attended Johns Hopkins University School of Medicine and served on its admission committee. As such, both personal experience and insight into the inner workings of the admission process serve as the fund of knowledge from which the following advice derives. Although I will do my best to generalize, by design this document is subject to personal and institutional bias. With that in mind, I hope the following will solidify your understanding of the application process, enhance your application, and help you succeed in your path to becoming a physician. The application process can seem overwhelming at times – just refer to the printable time-line at the bottom of the document for reference.

My profound thanks to Wade See, Justin Shinn and Mitch Todd who added their insights and aided in the logistics of this project.

Consolidating Your Decision

You are about to embark on an educational journey that comes with a high price tag, a substantial time commitment, and a significant intellectual and, at times, emotional burden. At the end of this journey awaits a profession that comes with a high degree of responsibility, requirement for continued education, and long hours. Therefore, it would be foolish to embark on this journey without certainty that the end-product is what you desire. Given the fact that you're reading this document, you most likely believe that this career is right for you. My rhetorical question to you is: how do you know? Do you derive your knowledge from the media or the romanticized idea of medicine often portrayed on television? Ask yourself honestly, and if there's even a hint of doubt you should remedy the situation by gathering more information: shadow physicians, volunteer in clinics, talk to patients, or work in a hospital. Have an open ear for things that are good about medicine, but also take a look at the frustrations with non-compliant patients, how insurance companies dictate medical practice without having the best interest of the patient in mind, and the limited family life physicians in some specialties are able to have.

Did you know...?

Most applicants know little about what an average day for a physician looks like.

Selecting Your Major

Many of you who are reading this will have chosen premedical sciences and biology as your major. However, please know that you can choose any major

you like and still apply to medical school as long as you meet their basic coursework requirements. This being said, choose a field of study you enjoy and keep in mind it will make you a more unique applicant.

Non-required courses

There are some courses offered at the University of Montana that are not required for admission to medical school, but I believe they will enhance your application and make your life easier as a medical student.

- First and foremost, The University of Montana offers the unparalleled opportunity to learn on real human cadavers during anatomy and physiology. Most other undergraduate institutions teach on plastic models since human cadavers are very expensive to obtain. This hands-on learning will make the first few weeks in medical school significantly easier. In addition, you have the opportunity to become a teaching assistant. This involves prosecting a part of the cadaver for your students while the act of teaching will solidify your understanding of the human body.
- Calculus I and II are required by some, but not all medical schools. I strongly advise you to take these classes so as not to limit the schools to which you are eligible to apply. In addition, calculus will aid you in developing logical problem solving skills. However, if math is not your strong suit, there is no reason to risk your GPA if you believe you may struggle with this material.
- While inorganic chemistry is a required course, it provides the opportunity to become a teaching assistant if you earn either an A or B in the course. Again, teaching solidifies your own understanding of the material. In addition, one aspect of being a doctor is to teach patients about their diseases – therefore, medical schools value teaching experience in applicants.
- I also encourage you to take classes in biochemistry and molecular cell biology. Much of medicine now happens at the molecular level and it is good to have a fundamental understanding of these processes. Some medical schools now also require a biochemistry course.

Did you know...?

Learning on real cadavers as an undergraduate is a unique opportunity.

Did you know...?

Inorganic chemistry will teach you a stringent approach to problem solving, a skill which will benefit you on the MCAT.

Nontraditional students

For the purpose of medical school application, an applicant who has taken time off either in college or is applying after graduation is considered non-traditional. As long as time taken off has been used wisely and productively, this can be an asset on the application. Time taken off because of a personal crisis (severe illness or death of a loved one) will not be held against you. However, should you take time off and merely "bum around", it will reflect negatively on your commitment to your own education. Should you be non-traditional in the sense that you are a parent, please know that medical schools are not allowed to ask

whether you are married, have children, are religious, etc. However, if you bring it up - it's fair game for conversation. Being a parent in medical school is neither unheard of nor impossible, but it is a challenge. If you are a minority (race, sexual orientation, etc.), you should mention it somewhere on your application as medicine is actively trying to diversify.

Extracurricular activities

On the AMCAS application, you will have the opportunity to list up to 15 extracurricular activities. During your time in college, your aim should be to pursue extracurriculars you enjoy in addition to meeting at least one of the following criteria: help the community, provide you with medical experience, allow you to hold a leadership position, or allow you to teach something to others. While the quality of your extracurricular activities certainly matters, so does quantity. Medical schools are looking for applicants who display longitudinal commitment to their endeavors. For example, volunteering at a homeless shelter once a week for five hours starting your freshman year carries more weight than having volunteered in soup kitchens, the emergency department, as a tutor, and as a first aid instructor but only two months at a time. In addition, keep in mind that a human being is reading your application and that listing over a dozen activities will decrease the "value" of each individual experience. Lastly, there are only 168 hours in a week: the admission committee will become suspicious should you have a "super human" amount of extracurricular activities.

Did you know...?

More is not always better. Focus your efforts.

Research

Medicine is a field in which knowledge is still rapidly being accumulated by means of research. While many doctors are physician-researchers, there's nothing wrong with wanting to pursue a purely clinical career. However, in order to be an excellent clinician, you must be able to critically read and evaluate data from studies and research projects. Medical schools prefer applicants who have at least some research experience. As a general rule, the research conducted by the applicant should be somehow related to the practice of medicine (basic science research in biology, clinical research, etc.). It is also important that the research experience is more than mindless work (such as cleaning glassware, running Western blots, PCR) and should include some aspects of critical thought even if in the form of a literature review, team meetings, or even the generation of your own hypothesis. You are in no way expected to be a published author by the time you apply – but it does not hurt if you are. See if you can present your research findings as a poster at the local science fair. Most importantly, you need to be knowledgeable about your field of research and should be able to discuss how the results of the research may lead to improved patient care. Odds are your research will be discussed during the interview.

Did you know...?

Even if research is not your cup of tea, you need to gain a basic understanding of how scientific knowledge is obtained so that you can apply it.

Leadership

Medicine is no longer a field in which a demi-God in a white coat knows everything. Instead, it has become a team sport in which physicians take the role as team captain. Therefore, leadership experience is important to the future physician. Some applicants will have served time in the military and most likely have accumulated a large amount of leadership experience. For those without a military background, leadership opportunities can be found on sports teams, the student government, student interest groups, or fraternities/sororities. You should make an effort to be elected into these positions, or you may take matters into your own hands by founding your own student group. You should try to keep a position within the same organization for at least two election cycles as it will show the reviewer of your application that your peers felt comfortable re-electing you.

International Experience

Working in the international arena boosts your resume somewhat, but it is not a substitute for volunteering and researching at home. Although opportunities are vast, many of them are unfortunately associated with a significant price tag. Yet again, most experiences will render you more mature and aware of the struggles of others. You may talk to professors at The University of Montana to determine if they are aware of any humanitarian or research projects abroad. Another resource for you might be the IE₃ program which provides placement services for international experiences. The contact person for IE₃ at the University of Montana is:

Kevin Hood
(406) 243-4613
kevin.hood@mso.umt.edu

If you come up dry, here is a link to the Johns Hopkins Bloomberg School of Public Health website which features a world map showing all Hopkins associated research projects and corresponding contact information.

Did you know...?

There are a variety of funding opportunities from the federal government for doing research abroad.



<http://www.jhsph.edu/faculty/research/map>

Teaching

The word "doctor" is in fact derived from the Latin word "docere" meaning "to teach". In the world of academic medicine, teaching is held equivalent to research and patient care. After all, as a future physician you have the responsibility of educating your patients about their disease, educating the general public about the prevention of disease, and training the next generation of physicians that will follow in your footsteps. Therefore, any paid or unpaid teaching activity is highly encouraged. While tutoring is admirable, you should teach in a more structured setting if given the opportunity. This could be academic, such as working as a TA in inorganic chemistry or as a TA for anatomy and physiology. Alternatively, you could kill three birds with one stone by teaching first aid/CPR in your community as it will give you medically-related volunteer work with teaching experience. Missoula has multiple opportunities to offer such as tutoring students about to fail out of high school or mentoring mentally challenged children. If a group you are looking for does not exist – start one yourself.

Did you know...?

Teaching is a core value of academic medicine, alongside research and patient care.

Volunteerism

During my time as an undergrad, I perceived it as ironic that volunteer work was required to get into medical school, as the sole notion of a requirement erased any altruistic aspect to the volunteer work. That being said, your work as a volunteer in the community will provide you with ample opportunities to learn about obstacles faced by others: the disenfranchised, the poor, or the terminally ill. There's no clear-cut rule how much volunteer work is expected from an applicant, but you should have at least three different volunteer experiences on your resume, each lasting for a significant amount of time (volunteering at a

one-day fundraising event does not carry much weight). Most importantly, you should enjoy your volunteer work and use it as a learning opportunity. Ignore the fact that it is "required" and try to make a difference in the life of people less fortunate than you. Your volunteerism is one of the big-ticket items on your application. Even very strong applicants move to the bottom of the pile if they are deficient in this category as the future physician is expected to work for the greater good of society, even if uncompensated for his or her work at times.

Clinical Experience

Refer back to the second paragraph of this document. While you may have come to the conclusion that medicine is right for you, those reviewing your application will have the same question, and it is your job to convince them that the answer is "yes". Therefore, having medical experience under your belt will reassure the admission committee that you know what you're getting yourself into. The lowest tier of medical experience is "shadowing", passively following a physician. Every applicant to medical school will have shadowed a variety of physicians, and if this is your sole medical exposure, you will not separate yourself from the crowd. Instead, try to play an active role within the healthcare team: you could volunteer at a hospice, in the emergency department, or just as a patient visitor. Alternatively, you could obtain a license to work as a patient care technician or phlebotomist and earn some money on the weekend. Check with St. Patrick Hospital or Community Medical Center regarding training and employment opportunities. Regardless of what activity you do, I strongly encourage you to attend conferences and grand rounds. Lastly, I encourage you to work closely with a particular physician, making him/her a potential author of one of your letters of recommendation.

The MCAT

A plethora of books is available regarding the best way to study for the MCAT, and it would be futile to regurgitate said information while attempting to keep this document short. My advice: dedicate approximately 8 to 10 weeks to studying for this test exclusively. Study hard. You can register for the test and get a free practice test here:

<https://www.aamc.org/students/applying/mcat/>

If you come from a financially disadvantaged family, you should try your best to qualify for the fee assistance program. Not only will it waive the fee for the MCAT, but it will eliminate the application fees to the individual schools, literally saving you thousands of dollars. Unfortunately, you will still have to pay out of pocket to travel to the interviews. An application for the fee assistance program is located here:

Did you know...?

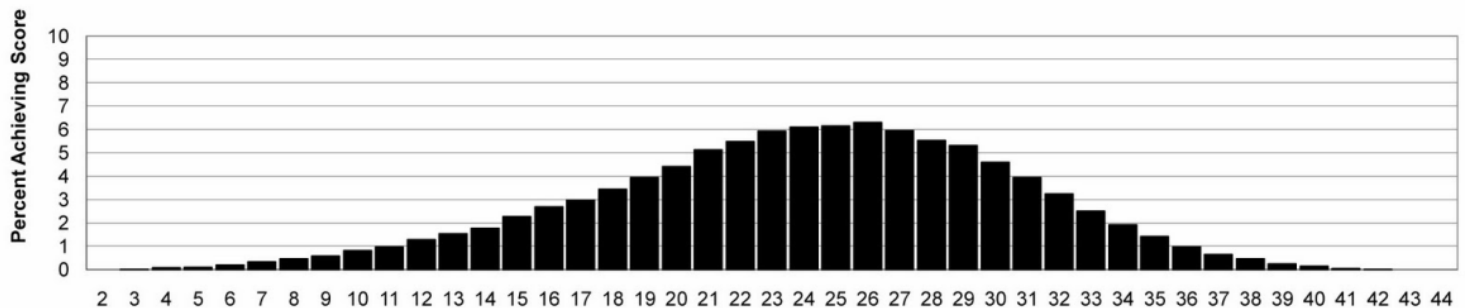
Aside from the USMLE step 1, no standardized test will have a bigger impact on your career as a physician than the MCAT.

<https://www.aamc.org/students/applying/fap/>

When several thousand undergraduate students apply for 120 seats at a medical school, the easiest way to create a pool from which to interview applicants is to have a numeric cut-off. This is the main role of the MCAT. Of course, the exact value of the cut-off is specific to each medical school. From my experience at Hopkins, few applicants with a score below 30 received an interview. Other schools have a lower “automatic” cut-off, or place more emphasis on experience and letters of recommendation. The national average MCAT score for an applicant who got accepted to medical school is approximately 29. Keep in mind what “average” means: 50% are below that score. So keep calm, a score of 27 or greater should at least get you some interviews.

The members of the admission committee are aware that the MCAT reflects your academic performance on a single day only. It is therefore advisable to have a strong GPA (> 3.5) and perhaps a mediocre MCAT score, rather than scoring a 38 on the MCAT while struggling to maintain a GPA of 3.1. If you are not satisfied with your MCAT score, you may take the test again. All scores will be reported, but most schools will only consider your highest score. However, taking the MCAT more than two or three times raises a red flag. Here is the approximate distribution of the 2011 MCAT scores from the AAMC website at

<https://www.aamc.org/students/download/264234/data/combined11.pdf>



Distribution of the 2011 MCAT: 86181 students took the exam, averaging 25.1 with a SD of 6.4.

Selecting a School

You should apply to *at least* 10 schools. Talk to your advisor to see what he/she recommends given the strengths and weaknesses of your application. I recommend the following breakdown:

- 1/3 of your applications should be to schools you dream of attending (top-tier).

Did you know...?

You should make sure to have some ‘safety schools’, but don’t be afraid to aim high as well.

- 1/3 should be to schools you consider good schools.
- The remainder should be to schools you are fairly confident will accept you.

Of course there are other determinants when selecting schools such as: location, proximity to family, focus of the school of primary care versus sub-specialization etc. My advice to you is to buy a book by the Princeton Review called "The Best 168 Medical Schools" (all schools in Canada and the United States, actual number changes with each addition"). This book lists the average MCAT scores and GPA of those admitted to that institution the prior cycle and will allow you to gauge where you are a competitive applicant. In addition, it provides information about tuition, cost of living, etc. Alternatively, AAMC has a website (<https://services.aamc.org/30/msar/home>) which you can join for \$15.

For most Montana residents, The University of Washington and the WWAMI program should at least be considered. This program allows Montana residents to attend the University of Washington and pay "in-state" tuition. Students from Montana currently attend their first year of medical school at Montana State University in Bozeman. Tuition (and cost of living) this first year is even cheaper than if you were in Seattle. Montana residents also have the opportunity to return to Missoula or Billings for their 3rd year of medical school. This should all be considered when looking at where you can get the best combination of a good education, lowest student loans, and probably most important, lowest (but not low) stress. If you are early in your undergraduate career, pay close attention to establishing and maintaining your Montana residency (or residency in one of the other WWAMI region states: Washington, Wyoming, Alaska, Montana and Idaho) if you hope to attend University of Washington. A simple misstep such as registering to vote in a different state or not getting your driver's license in Montana could mean the difference in attending UW or not, and could be a \$100,000 mistake.

In addition to US medical schools, some applicants consider applying to off-shore institutions such as Ross or St. George's. Although these medical schools teach a US curriculum and you have the opportunity to rotate through US hospitals, you will be considered a US-international medical graduate (USIMG) when applying for residency. This means that the Education Commission for Foreign Medical Graduates (ECFMG) will have to certify you before you can become a resident. According to their website at ecfm.org, only 40% of applicants coming from a medical school in the Dominican Republic in the time period from 1981-2005 were certified. In addition, of all USIMGs that participated in the National Residency Match Program (NRMP) in 2008, only 52% matched (vs. 94% graduating from US institutions). However, Ross University claims that "Many obtain positions outside the Match" without providing specific data. Acceptance to off-shore medical schools may be significantly easier (Ross accepted 38% of applicants in 2010 vs. 3.6% for George Washington University, ranked #60 by US News and World Report) – yet keep in mind that getting into medical school is not the end goal: becoming a physician is.

Did you know...?

The University of Washington reserves 20 seats for Montana applicants as part of the WWAMI program.

Sources:

<http://www.ecfm.org/evsp/presentations/seeling.pdf>

<http://www.usnews.com/education/blogs/medical-school-admissions-doctor/2011/08/01/pros-and-cons-of-applying-to-foreign-medical-schools>

Application Timeline

Many schools have a rolling admission, but most of them do not merely accept the first 120 qualified applicants and then stop interviewing. Instead, their interview cycle is broken up into several blocks. In each block a roughly equivalent number of applicants are accepted. Therefore, you theoretically should not have a disadvantage unless you interview in the last block and the school feels they have over-accepted (a school with 120 seats may accept 300 applicants, knowing that some will go to a different institution). However, you will be interviewed by human beings, who are subject to tiring as the admission cycle progresses. My advice to you is to submit the application as early as possible so that you are least affected by interviewer burn-out and have the option of applying to more schools should you only receive a few interview invitations.

Make sure you scrub your social network of all photographs and comments your grandmother would not be proud of. Keep it that way until you retire. If you think the admission committee (and future patients) will not research a candidate online, you are mistaken.

Primary and Secondary Application

The primary application is the same for every school. It lists grades, coursework, MCAT scores, volunteer and research experiences. Some of these experiences you can designate as "most meaningful experience". You should not merely describe the activity, but highlight a skill, quality, goal, emotion, etc. that was instilled within you as a person (and future physician) and how this activity has impacted your decision to go to medical school.

The "personal statement" only comes with a character limit, but you can write about anything you want. DO NOT merely restate your experiences that you have listed above. Imagine you have to read several hundred of these essays, you will be thankful for a well-written and entertaining piece. My advice is to start with the vignette, for example describing a patient you have encountered, a difficult situation you found yourself in, or some similar experience. For example, my personal statement for medical school discussed how a patient with multiple sclerosis died while I was at her side as an EMT and how I paradoxically felt happy to be there. My personal statement for the residency application described how I had trained hard for months to run a marathon in under three hours only to stop and help an injured runner, consequently

Did you know...?

Make sure your personal statement is interesting to read, sells you well, but doesn't make it sound like you can walk on water.

Did you know...?

The photograph in your application will be the 'first impression' for every member of the admission committee who did not interview you personally.

missing my goal time by several minutes. Once you have immersed the reader into a situation, with **subtlety**, highlight your character traits and how your performance in this situation predicts what kind of physician you will one day become. While the personal statement serves as an advertisement platform for you as an applicant, you do not want to appear egocentric, narcissistic, or just "full of yourself". Instead, write the statement about the patient you encountered, making them the focus of the essay. Between the lines, let the reader know how great a person you are.

The following cannot be stressed enough: get everything proofread by several people. Nothing kills an application faster than a personal statement or the description of an experience riddled with grammatical and spelling errors. We have a tendency to fall in love with what we write – do not trust yourself to proofread your work. You will also be asked to upload a photograph. Submit a professional photograph - you don't have to show how "free-spirited" you are, it will only backfire.

The Secondary Application

Once the primary application is submitted, schools will send you a secondary application, which you need to return ASAP and with a processing fee payment ranging from approximately \$80-\$100. Do not get your hopes up because you received a secondary application, most schools will send you one. If you applied to 20 schools, you will be approximately \$2000 poorer at this point and you didn't fly to a single interview yet. This is why qualifying for the fee assistance program mentioned above is so important.

The secondary application consists of prompts for small essays such as "describe a situation in which you were not in the majority", "describe a time in your life when you faced adversity and how you overcame it" or "what accomplishment are you most proud of". As with the primary application, get everything proofread by several people. Most importantly, if you're happy with a certain response, save it on your computer as prompts and secondary applications are inevitably similar between different schools.

Letters of Recommendation

You will need to secure several letters of recommendation that will then be sent to the premedical advisor who drafts a composite committee letter, highlighting the good things other people said about you. You want to request letters from professors, physicians, researchers, or members of the community who have worked with you and know you personally. If possible, request letters from people who have written them before. It may be beneficial to request the letter while you are still fresh in the author's mind and have it kept in your advisor's file (they expire after 3 years). When approaching a potential author, ask if they

feel comfortable writing a STRONG letter of recommendation for you for admission to medical school. In the event that you sense any hesitation on their part or you have doubts of your own about the ability of the writer to speak on your behalf – ask somebody else. On the other hand, if they agree to support you, have a curriculum vitae (resume) available and be prepared to sit down with them so that they may ask you further questions. Encourage your authors to incorporate specific examples of your performance. The sentence "she's great with patients" does not carry as much weight as "armed only with a box of tissues, she helped calm the devastated wife of a patient who had just passed away in the emergency department. She did what no other member of the healthcare team did: she listened empathetically."

Once your authors have submitted their letters, be sure to thank them in writing so that those students following in your footsteps will find them receptive to writing another letter.

The Interview

The interview process costs a lot of money – the beauty of studying in Montana comes with the burden of having to fly to every interview - there are no medical schools within reasonable driving distance. Early in college, get a credit card that allows you to collect miles that don't expire. This will at least save you some money when you have to book flights. Also ask the admissions office of each medical school if current medical students host applicants – it means you stay and eat for free and get the chance to hear a candid opinion about the school.

Before you travel to your first interview, you should schedule a mock interview through the PreMed advising office. Film yourself with a camera to see if you have any "tics" when you're in the spotlight. I found that I always looked up when thinking of an answer, something that could easily be misinterpreted as me rolling my eyes.

Next, you should prepare answers to commonly asked questions. The forum "student doctor network (SDN)" allows individuals to leave feedback regarding their experience at various institutions, including listing specific questions they were asked.

<http://studentdoctor.net/schools/>

Read through the reported interview questions and notice which recur frequently, then prepare and practice a sophisticated answer *in bullet points*. You do not merely want to learn an answer by heart. When being asked a question, your answer should be natural and not appear rehearsed - having trained with bullet points will help you to appear genuine.

The interview is a two-way street: not only does the school interview you, but you interview them to see if they are a good match for you. At the end of each

Did you know...?

Avoid controversial conversation topics like politics, abortion, religion etc. during the interview.

Did you know...?

A quick word on SDN – as with every internet blog, not every opinion is informed, and not every statement based on fact. Do not simply discard a potential program because others didn't like it.

interview, your interviewer will give you the opportunity to ask questions. Tailor your question to your audience: don't ask a 70-year-old professor what he likes to do for fun in the city. You should have at least two specific questions about the school or their curriculum, as well as generic questions. Ask a question that furthers your understanding of the school and why you would want to go there. Ideally, your thoughtful question should also contribute to giving your interviewer a positive opinion about you. Do not *only* ask the interviewer about him/herself (although they do like to talk about themselves) and don't ask more than three questions overall.

Treat a medical school interview as a professional job interview. This means you will not update your Facebook status, tweet something or text your friends until the interview day is over. Dress professionally; women should not wear very short skirts or dresses and cleavage should be modest. Men are expected to wear a suit – most applicants will wear dark blue or black, making the group of interviewees look like a funeral procession. Remember, you do want to stick out a little, so consider a lighter gray or brown suit, but keep it tasteful.

During the day of the interview, treat everybody with the utmost courtesy and respect, even if you think they have nothing to do with the admission committee. Your social interaction will be monitored and evaluated by those around you.

Different schools handle interviews differently. Some require two faculty interviews while others incorporate a student interview. Lately, an interview technique called MMI (multiple mini-interviews) has become popular: you talk for only 10 minutes but interview with several individuals. At the end of the interview, make sure you thank your interviewer for his/her time.

Post-Interview Protocol

During your interview day, you should record the name of your interviewers and one specific thing you have talked about. When you come home, send out "thank you" cards right away saying: "Dear Dr. [...] – thank you for taking the time to interview with me. I especially enjoyed our discussion about [...]." Odds are that sometime within the next 2 to 4 weeks, the admission committee will meet and discuss your application. The thank you-card will help your interviewer remember you.

Do not send CDs, videos, artwork, or any other extra material unless requested by the interviewer.

The Right Place

Did you know...?

There's more to choosing a medical school than the prestige of the institution.

Did you know...?

It is better to be remembered by your clothes than because of them.

Hopefully, more than one school accepts you so that you have a choice of where you will become a physician. Things I thought were important initially turned out to be completely irrelevant: the student-to-cadaver ratio does not truly matter, neither does whether the school has a traditional or a pass/fail grading system.

What really matters is the hospital the school is associated with. Your grades from your first clinical year (third year) are your foot in the door for residency and are earned in that hospital. Also, make sure you (and significant other, if applicable) are happy with the location of the school, the city it is in, etc. Did the students you encountered on your interview day seem happy? Four years is a long time to be miserable, so make this choice carefully.

Good luck.

Freshman

- Meet with freshman PreMed advisor
- Sign up to receive email updates by going to: <http://www.health.umt.edu/chpbspremed.php>
- Join and become active in the Pre-Professional Health Sciences Club.
- Explore volunteer possibilities by second semester.

Sophomore

- Select a major and meet with the appropriate PreMed advisor in your major.
- Continue volunteering, and work to set up job shadowing experiences.
- Consider enrolling in the Medical Profession Preparation and Overview course.
- Consider a research experience.

Junior

- Meet with Dr. Pershouse during the fall semester to go over the application process.
- Collect all of your letters of recommendation.
- Complete all pre-requisite courses.
- Work on your personal statement.
- Take the MCAT in the spring.
- Apply for Montana Residency status for the WWAMI and WICHE programs.
- Your application should be completed and submitted by the end of July.

Senior

- Congratulations, you have an interview! Now what? Contact the Program Coordinator to set up mock (practice) interview.